

SEQUENCE LISTING

<110> E. I. du Pont de Nemours and Company
 <120> Nucleic Acid Sequences Encoding Isoflavone Synthase
 <130> BB1339 PCT

<140>
 <141>
 <150> 60/117,769
 <151> 1999-01-27

<150> 60/144,783
 <151> 1999-07-20

<150> 60/156,094
 <151> 1999-09-24

<160> 66

<170> Microsoft Office 97

<210> 1
 <211> 1756
 <212> DNA
 <213> Glycine max

<400> 1
 gtaattaacc tcactcaaac tcgggatcac agaaaaccaac aacagttctt gcactgaggt 60
 ttcacatgt tgcttggact tgcacttggg ttgtttgtgt tagtttggt tctgcacttg 120
 cgtccccacac caagtgcaaa atcaaaaagca ctgcgcacc tccaaaccc tccaaagccca 180
 aaggcctcgtc ttcccttcat tggccaccc cacctttaa aagataaaact tctccactat 240
 gcactcatcg atctctccaa aaagcatggc cccttattct ctctctctt cggtccatg 300
 ccaaccgtcg ttgcctccac ccctgagttt ttcaagctt ctctccaaac ccacgaggca 360
 acttcttca acacaagggtt ccaaaccctt gccataagac gcctcactt cgacaactct 420
 gtggccatgg ttccattcgg accttactgg aagttcgtga ggaagctcat catgaacgac 480
 ctctcaacg ccaccaccgt caacaagctc aggctttga ggacccaaca gatccgcaag 540
 ttcccttaggg ttatggccca aagcgcagag gcccagaagc cccttgacgt caccgaggag 600
 ctctctaaat ggaccaacacg caccatctcc atgatgatgc tggcgaggg tgaggagatc 660
 agagacatcg ctgcgaggt tcttaagatc ttgcgcgaat acagcctcac tgacttcattc 720
 tggcctttga agtatctcaa ggttggaaag tatgagaaga ggattgtatc catcttgaac 780
 aagttcgacc ctgtcgttga aagggtcatc aagaagcgcc gtgagatcgt cagaaggaga 840
 aagaacggag aagttgttga gggcgaggcc agcggcgctt tcctcgacac tttgcttggaa 900
 ttgcgtgagg acgagaccat ggagatcaa attaccaagg agcaaatacc gggccttgg 960
 gtcgacttt tctctcgagg gacagattcc acagcggtgg caacagatgt ggcattggca 1020
 gagctcatca acaatcccag ggttgcac aaggctcgatc aggaggtcta cagtgttgc 1080
 gcaaaagata gactcggttga cgaagtttgc actcaaaaacc ttcccttacat tagggccatt 1140
 gtgaaggaga cattccgaat gcacccacca ctcccgatgg tcaaaaagaaa gtgcacagaa 1200
 gagttgttga ttaatgggtt tttgtatccca gaggagcat tggttctttt caatgtttgg 1260
 caagttaggaa gggacccaa atactgggac agaccatcg aattccgtcc cgagaggttc 1320
 ttagaaactg gtgctgttga ggaaggcaggc cctcttgc ttagggccca gcatttccaa 1380
 ctcccttccat ttgggtctgg gaggagaatg tgccctgggt tcaatttggc tacttcagga 1440
 atggcaacac ttcttgcattcttgcattccaa tgcttgcatt tgcaagtgtct gggccctcaa 1500
 ggacaaataat tgaaagggttga tgatgcacaa gtttagcatgg aagagagagc tggcctcaca 1560
 gttccaagggg cacatagtct cgtttgttt ccacttgcac ggatcggcgt tgcattctaaa 1620
 ctcccttctt aattaaatgc atcatcatat acaatagtag tttttatgttgc tttttatgttgc 1680
 aagggttacat acatgc tttttatgttgc tttttatgttgc tttttatgttgc tttttatgttgc 1740
 aagggttacat acatgc tttttatgttgc tttttatgttgc tttttatgttgc tttttatgttgc 1756

<210> 2
 <211> 521
 <212> PRT
 <213> Glycine max

<400> 2
 Met Leu Leu Glu Leu Ala Leu Gly Leu Phe Val Leu Ala Leu Phe Leu
 1 5 10 15
 His Leu Arg Pro Thr Pro Ser Ala Lys Ser Lys Ala Leu Arg His Leu
 20 25 30
 Pro Asn Pro Pro Ser Pro Lys Pro Arg Leu Pro Phe Ile Gly His Leu
 35 40 45
 His Leu Leu Lys Asp Lys Leu Leu His Tyr Ala Leu Ile Asp Leu Ser
 50 55 60
 Lys Lys His Gly Pro Leu Phe Ser Leu Ser Phe Gly Ser Met Pro Thr
 65 70 75 80
 Val Val Ala Ser Thr Pro Glu Leu Phe Lys Leu Phe Leu Gln Thr His
 85 90 95
 Glu Ala Thr Ser Phe Asn Thr Arg Phe Gln Thr Ser Ala Ile Arg Arg
 100 105 110
 Leu Thr Tyr Asp Asn Ser Val Ala Met Val Pro Phe Gly Pro Tyr Trp
 115 120 125
 Lys Phe Val Arg Lys Leu Ile Met Asn Asp Leu Leu Asn Ala Thr Thr
 130 135 140
 Val Asn Lys Leu Arg Pro Leu Arg Thr Gln Gln Ile Arg Lys Phe Leu
 145 150 155 160
 Arg Val Met Ala Gln Ser Ala Glu Ala Gln Lys Pro Leu Asp Val Thr
 165 170 175
 Glu Glu Leu Leu Lys Trp Thr Asn Ser Thr Ile Ser Met Met Met Leu
 180 185 190
 Gly Glu Ala Glu Glu Ile Arg Asp Ile Ala Arg Glu Val Leu Lys Ile
 195 200 205
 Phe Gly Glu Tyr Ser Leu Thr Asp Phe Ile Trp Pro Leu Lys Tyr Leu
 210 215 220
 Lys Val Gly Lys Tyr Glu Lys Arg Ile Asp Asp Ile Leu Asn Lys Phe
 225 230 235 240
 Asp Pro Val Val Glu Arg Val Ile Lys Lys Arg Arg Glu Ile Val Arg
 245 250 255
 Arg Arg Lys Asn Gly Glu Val Val Glu Gly Glu Ala Ser Gly Val Phe
 260 265 270
 Leu Asp Thr Leu Leu Glu Phe Ala Glu Asp Glu Thr Met Glu Ile Lys
 275 280 285
 Ile Thr Lys Glu Gln Ile Lys Gly Leu Val Val Asp Phe Phe Ser Ala
 290 295 300
 Gly Thr Asp Ser Thr Ala Val Ala Thr Glu Trp Ala Leu Ala Glu Leu
 305 310 315 320
 Ile Asn Asn Pro Arg Val Leu Gln Lys Ala Arg Glu Glu Val Tyr Ser
 325 330 335
 Val Val Gly Lys Asp Arg Leu Val Asp Glu Val Asp Thr Gln Asn Leu
 340 345 350

Pro Tyr Ile Arg Ala Ile Val Lys Glu Thr Phe Arg Met His Pro Pro
 355 360 365

Leu Pro Val Val Lys Arg Lys Cys Thr Glu Glu Cys Glu Ile Asn Gly
 370 375 380

Tyr Val Ile Pro Glu Gly Ala Leu Val Leu Phe Asn Val Trp Gln Val
 385 390 395 400

Gly Arg Asp Pro Lys Tyr Trp Asp Arg Pro Ser Glu Phe Arg Pro Glu
 405 410 415

Arg Phe Leu Glu Thr Gly Ala Glu Gly Glu Ala Gly Pro Leu Asp Leu
 420 425 430

Arg Gly Gln His Phe Gln Leu Leu Pro Phe Gly Ser Gly Arg Arg Met
 435 440 445

Cys Pro Gly Val Asn Leu Ala Thr Ser Gly Met Ala Thr Leu Leu Ala
 450 455 460

Ser Leu Ile Gln Cys Phe Asp Leu Gln Val Leu Gly Pro Gln Gly Gln
 465 470 475 480

Ile Leu Lys Gly Asp Asp Ala Lys Val Ser Met Glu Glu Arg Ala Gly
 485 490 495

Leu Thr Val Pro Arg Ala His Ser Leu Val Cys Val Pro Leu Ala Arg
 500 505 510

Ile Gly Val Ala Ser Lys Leu Leu Ser
 515 520

<210> 3

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Oligonucleotide

<400> 3

cgggatccat gcaaccggaa accgtcg

27

<210> 4

<211> 32

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Oligonucleotide

<400> 4

ccggaattct caccaaacat cacggaggtt tc

32

<210> 5

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Oligonucleotide

<400> 5

tcaaggagaa aaaaccggatccatgttg ctggaacttg cacttgg

47

<210> 6
<211> 35
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Oligonucleotide

<400> 6
ggccagtgaa ttgtataacg actcactata gggcg

35

<210> 7
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:PCR primer

<400> 7
aaaatttagcc tcacaaaagc aaag

24

<210> 8
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:PCR primer

<400> 8
atataaggat tgatagtttta tagtagg

27

<210> 9
<211> 1824
<212> DNA
<213> Glycine max

<400> 9
ggaaaatttag cctcacaaaaa gcaaagatca aacaaaccaa ggacgagaac acgatgtgc 60
ttgaacttgc acttgggaaa ttgggtttgg ctctgtttct gcacttgctg cccacaccca 120
ctgaaaatc aaaagcactt cggcatctcc caaaccacc aagccaaag cctcgcttc 180
ccttcatagg acacccatcat ctctaaaag acaaacttct ccactacgca ctcatcgacc 240
tctccaaaaaa acatggtccc ttattctctc tctactttgg ctccatgcca accgttgg 300
cctccacacc agaattgttc aagcttcc tccaaacgca cgaggcaact tcctcaaca 360
caaggttcca aacctcagcc ataagacgccc tcacccatga tagctcagtg gccatggg 420
ccttcggacc ttacttggaaat ttcgtgagga agctcatcat gaacgaccc cccaaacgcca 480
ccactgtaaa caagtttgggg cctttgggg cccaaacagac cggcaagttc cttaggg 540
tggcccaagg cgcagaggca cagaagcccc ttgacttgc cgaggagctt ctgaaatgg 600
ccaaacagcac catctccatg atgatgtcg gcgaggctga ggagatcaga gacatcgctc 660
gcgagggttct taagatctt ggcgaataaca gcctcaactga cttcatctgg ccattgaagc 720
atctcaaggat tggaaatgtt gagaaggatc tcgaccatcat cttgaacaatg ttcgaccctg 780
tcgttggaaat ggtcatcaag aagcgccgtg agatgttgc gaggagaaat aacggagagg 840
ttgttgggg tgaggctcggc ggggtttcc ttgacttgc gcttgaatc gctgaggatg 900
agaccatggc gatcaaaaatc accaaggacc acatcgaggc ttttgggttc gacttttct 960
ccggcggggcc agactccaca gcgggtggca cagagtgggg attggcggaa ctcatcaaca 1020
atcccaaggat gttggaaaat gctcggtggg aggtctacatg ttttgggg aaggacagac 1080
ttgttggacca agttgacact caaaacccatc ctttacatttgc agcaatcgatc aaggagacat 1140
tccgcatttgc cccggccactc ccagtggtca aaagaaaatg cacagaaggg ttttgggg 1200
atggatatgtt gatcccgatgg gggatgttca ttcttcttca ttttgggg gttttttttt 1260
accccaataat cttggatggat ccatcggttcc tccgttcttca gggatgggg gagacaggg 1320
ctgaaggggat ggcaggccctt ctttgcatttgc gggatgggg ttttcaattt ctcccatgg 1380
ggctggggat gagaatgttgc cttggatgttca atctggatgttcc ttttgggg gttttttttt 1440
ttgcatttgc ttttgcatttgc aagttgttgc gggatgggg ttttcaattt ctcccatgg 1500
agggttggat ggcaggccctt agcatggatgggg gggatgggg ttttcaattt ctcccatgg 1560

atagtcttgt ctgtgttcca cttgcaagga tcggcggtgc atctaaactc ctttcttaat 1620
 taagatcatc atcatatata atatttactt tttgtgtgtt gataatcatc atttcaataa 1680
 ggtctcggttc atctactttt tatgaagtat ataagccctt ccatgcacat tgtatcatct 1740
 cccatttgtc ttcgttgct acctaaggca atctttttt ttttagaaatc acatcatcct 1800
 actataaact atcaatcctt atat 1824

<210> 10
 <211> 521
 <212> PRT
 <213> Glycine max

<400> 10
 Met Leu Leu Glu Leu Ala Leu Gly Leu Leu Val Leu Ala Leu Phe Leu
 1 5 10 15

His Leu Arg Pro Thr Pro Thr Ala Lys Ser Lys Ala Leu Arg His Leu
 20 25 30

Pro Asn Pro Pro Ser Pro Lys Pro Arg Leu Pro Phe Ile Gly His Leu
 35 40 45

His Leu Leu Lys Asp Lys Leu Leu His Tyr Ala Leu Ile Asp Leu Ser
 50 55 60

Lys Lys His Gly Pro Leu Phe Ser Leu Tyr Phe Gly Ser Met Pro Thr
 65 70 75 80

Val Val Ala Ser Thr Pro Glu Leu Phe Lys Leu Phe Leu Gln Thr His
 85 90 95

Glu Ala Thr Ser Phe Asn Thr Arg Phe Gln Thr Ser Ala Ile Arg Arg
 100 105 110

Leu Thr Tyr Asp Ser Ser Val Ala Met Val Pro Phe Gly Pro Tyr Trp
 115 120 125

Lys Phe Val Arg Lys Leu Ile Met Asn Asp Leu Pro Asn Ala Thr Thr
 130 135 140

Val Asn Lys Leu Arg Pro Leu Arg Thr Gln Gln/Thr Arg Lys Phe Leu
 145 150 155 160

Arg Val Met Ala Gln Gly Ala Glu Ala Gln Lys Pro Leu Asp Leu Thr
 165 170 175

Glu Glu Leu Leu Lys Trp Thr Asn Ser Thr Ile Ser Met Met Met Leu
 180 185 190

Gly Glu Ala Glu Glu Ile Arg Asp Ile Ala Arg Glu Val Leu Lys Ile
 195 200 205

Phe Gly Glu Tyr Ser Leu Thr Asp Phe Ile Trp Pro Leu Lys His Leu
 210 215 220

Lys Val Gly Lys Tyr Glu Lys Arg Ile Asp Asp Ile Leu Asn Lys Phe
 225 230 235 240

Asp Pro Val Val Glu Arg Val Ile Lys Lys Arg Arg Glu Ile Val Arg
 245 250 255

Arg Arg Lys Asn Gly Glu Val Val Glu Gly Glu Val Ser Gly Val Phe
 260 265 270

Leu Asp Thr Leu Leu Glu Phe Ala Glu Asp Glu Thr Met Glu Ile Lys
 275 280 285

Ile Thr Lys Asp His Ile Glu Gly Leu Val Val Asp Phe Phe Ser Ala
 290 295 300
 Gly Thr Asp Ser Thr Ala Val Ala Thr Glu Trp Ala Leu Ala Glu Leu
 305 310 315 320
 Ile Asn Asn Pro Lys Val Leu Glu Lys Ala Arg Glu Glu Val Tyr Ser
 325 330 335
 Val Val Gly Lys Asp Arg Leu Val Asp Glu Val Asp Thr Gln Asn Leu
 340 345 350
 Pro Tyr Ile Arg Ala Ile Val Lys Glu Thr Phe Arg Met His Pro Pro
 355 360 365
 Leu Pro Val Val Lys Arg Lys Cys Thr Glu Glu Cys Glu Ile Asn Gly
 370 375 380
 Tyr Val Ile Pro Glu Gly Ala Leu Ile Leu Phe Asn Val Trp Gln Val
 385 390 395 400
 Gly Arg Asp Pro Lys Tyr Trp Asp Arg Pro Ser Glu Phe Arg Pro Glu
 405 410 415
 Arg Phe Leu Glu Thr Gly Ala Glu Gly Glu Ala Gly Pro Leu Asp Leu
 420 425 430
 Arg Gly Gln His Phe Gln Leu Leu Pro Phe Gly Ser Gly Arg Arg Met
 435 440 445
 Cys Pro Gly Val Asn Leu Ala Thr Ser Gly Met Ala Thr Leu Leu Ala
 450 455 460
 Ser Leu Ile Gln Cys Phe Asp Leu Gln Val Leu Gly Pro Gln Gly Gln
 465 470 475 480
 Ile Leu Lys Gly Gly Asp Ala Lys Val Ser Met Glu Glu Arg Ala Gly
 485 490 495
 Leu Thr Val Pro Arg Ala His Ser Leu Val Cys Val Pro Leu Ala Arg
 500 505 510
 Ile Gly Val Ala Ser Lys Leu Leu Ser
 515 520
 <210> 11
 <211> 21
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> Description of Artificial Sequence:PCR primer
 <400> 11
 atgttgctgg aacttgcact t 21
 <210> 12
 <211> 25
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> Description of Artificial Sequence:PCR primer
 <400> 12
 ttaagaaaagg agtttagatg caacg 25

<210> 13
 <211> 22
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:PCR primer

<400> 13
 tgtttctgca cttgcgtccc ac

22

<210> 14
 <211> 22
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:PCR primer

<400> 14
 ccgatccttg caagtggAAC ac

22

<210> 15
 <211> 1501
 <212> DNA
 <213> *Medicago sativa*

<400> 15
 tgtttctgca cttgcgtccc acaccaagtg caaaatcaaa agcacttcgc caccccccac 60
 acccccccac 120
 cccaaagcct cgtctccct tcattggca cttcaccc 180
 aacttctcca ctatgcactc atcgatctct cccaaaagca tggccccc 240
 ccttcggctc catgccaacc gtcgttgcc 200
 aaacccacga ggcaacttcc ttcaacacaa ggttccaaac ctctgccc 300
 cttagacaa ctctgtggcc atggttccat tcggaccc 360
 tcatcatgaa cgacccctc aacgcccacca ccgtcaacaa gctcaggc 420
 aacagatccg caagttcctt agggttatgg cccaaagcgc 480
 acgtcaccga ggagcttctc aaatggacca acagcaccat ctccatgatg atgctcggcg 540
 aggctgagga gatcagagac atcgctcgcg aggttctta gatctcggc 600
 tcactgactt catctggcct ttgaagtatc tcaagttgg 660
 atgacatctt gaacaagtgc gaccctgtcg ttgaagggt 720
 tcgtcagaag gagagagaac ggagaagtgg ttgaggcga 780
 acacccgc 840
 acattttgc tgaatttcgcg gaggacgaga ccatggagat 900
 tcaaggccct ttttgcgc ctttctctg cagggacaga 1000
 agtgggcatt ggcagagctc atcaacaatc ccagggtgtt 1060
 tctacagtgt tggggcaaaa gatagactcg ttgacaaatg 1120
 acattaggc cattgtgaag gagacattcc gaatgcaccc 1180
 gaaagtgcac agaagagtgt gagattaatg ggtatgtat 1240
 ttttcaatgt ttggcaagta ggaagggacc ccaaatactg 1300
 gtcccgagag gttcttagaa actggcgtc aagggaaac 1360
 gccagcattt ccaactcctc ccattgggt ctgggaggag 1420
 tggctacttc aggaatggca acacttctt catctttat 1480
 tgctggccccc tcaaggacaa atattgaaag gtatgtatgc 1540
 gagctggcct cacagttcca agggcacata gtctcgttt 1500
 g 1501

<210> 16
 <211> 499
 <212> PRT
 <213> *Medicago sativa*

<400> 16
 Phe Leu His Leu Arg Pro Thr Pro Ser Ala Lys Ser Lys Ala Leu Arg
 1 5 10 15

His Leu Pro Asn Pro Pro Ser Pro Lys Pro Arg Leu Pro Phe Ile Gly
 20 25 30

His Leu His Leu Leu Lys Asp Lys Leu Leu His Tyr Ala Leu Ile Asp
 35 40 45

Leu Ser Lys Lys His Gly Pro Leu Phe Ser Leu Ser Phe Gly Ser Met
 50 55 60

Pro Thr Val Val Ala Ser Thr Pro Glu Leu Phe Lys Leu Phe Leu Gln
 65 70 75 80

Thr His Glu Ala Thr Ser Phe Asn Thr Arg Phe Gln Thr Ser Ala Thr
 85 90 95

Arg Arg Leu Thr Tyr Asp Asn Ser Val Ala Met Val Pro Phe Gly Pro
 100 105 110

Tyr Trp Arg Phe Val Arg Lys Leu Ile Met Asn Asp Leu Leu Asn Ala
 115 120 125

Thr Thr Val Asn Lys Leu Arg Pro Leu Arg Thr Gln Gln Ile Arg Lys
 130 135 140

Phe Leu Arg Val Met Ala Gln Ser Ala Glu Ala Gln Lys Pro Leu Asp
 145 150 155 160

Val Thr Glu Glu Leu Leu Lys Trp Thr Asn Ser Thr Ile Ser Met Met
 165 170 175

Met Leu Gly Glu Ala Glu Glu Ile Arg Asp Ile Ala Arg Glu Val Leu
 180 185 190

Lys Ile Phe Gly Glu Tyr Ser Leu Thr Asp Phe Ile Trp Pro Leu Lys
 195 200 205

Tyr Leu Lys Val Gly Lys Tyr Glu Lys Arg Ile Asp Asp Ile Leu Asn
 210 215 220

Lys Phe Asp Pro Val Val Glu Arg Val Ile Lys Lys Arg Arg Gly Ile
 225 230 235 240

Val Arg Arg Arg Glu Asn Gly Glu Val Val Glu Gly Glu Ala Ser Gly
 245 250 255

Val Phe Leu Asp Thr Leu Leu Glu Phe Ala Glu Asp Glu Thr Met Glu
 260 265 270

Ile Lys Ile Thr Lys Glu Gln Ile Lys Gly Leu Val Val Asp Leu Phe
 275 280 285

Ser Ala Gly Thr Asp Ser Thr Ala Val Ala Thr Glu Trp Ala Leu Ala
 290 295 300

Glu Leu Ile Asn Asn Pro Arg Val Leu Gln Lys Ala Arg Glu Glu Val
 305 310 315 320

Tyr Ser Val Val Gly Lys Asp Arg Leu Val Asp Glu Val Asp Thr Gln
 325 330 335

Asn Leu Pro Tyr Ile Arg Ala Ile Val Lys Glu Thr Phe Arg Met His
 340 345 350

Pro Pro Leu Pro Val Val Lys Arg Lys Cys Thr Glu Glu Cys Glu Ile
 355 360 365

Asn Gly Tyr Val Ile Pro Glu Gly Ala Leu Val Leu Phe Asn Val Trp
 370 375 380

Gln Val Gly Arg Asp Pro Lys Tyr Trp Asp Arg Pro Ser Glu Phe Arg
 385 390 395 400

Pro Glu Arg Phe Leu Glu Thr Gly Ala Glu Gly Glu Ala Gly Pro Leu
 405 410 415

Asp Leu Arg Gly Gln His Phe Gln Leu Leu Pro Phe Gly Ser Gly Arg
 420 425 430

Arg Met Cys Pro Gly Val Asn Leu Ala Thr Ser Gly Met Ala Thr Leu
 435 440 445

Leu Ala Ser Leu Ile Gln Cys Phe Asp Leu Gln Val Leu Gly Pro Gln
 450 455 460

Gly Gln Ile Leu Lys Gly Asp Asp Ala Lys Val Ser Met Glu Glu Arg
 465 470 475 480

Ala Gly Leu Thr Val Pro Arg Ala His Ser Leu Val Cys Val Pro Leu
 485 490 495

Ala Arg Ile

<210> 17

<211> 1501

<212> DNA

<213> Vicia villosa

<400> 17

tgtttctgca	cttgcgtccc	acacccactg	caaaatcaaa	agcacttcgc	catctcccaa	60
accaccaag	cccaaagcct	cgtcttccct	tcataaggaca	ccttcatctc	ttaaaaagaca	120
aacttctcca	ctacgcactc	atcgacacct	ccaaaaaaca	tggccctta	ttctctctct	180
actttggctc	catgccaacc	gttggtcct	ccacaccaga	attgttcaag	ctcttcctcc	240
aaacgcacga	ggcaacttcc	ttaaacacaa	gttccaaac	ctcagccata	agacgcctca	300
cctatgatag	cttagtgcc	atggttccct	tcggacctta	ctggaagttc	gtgaggaagc	360
tcatcatgaa	cgaccttctc	aacgcccacca	ctgtaaacaa	gttgaggcct	ttgaggaccc	420
aacagatccg	caagttctt	agggttatgg	cccaaggcgc	agaggcacag	aagccccttg	480
acttgaccga	ggagctctg	aatggacca	acagcaccat	ctctatgatg	atgctcgccg	540
aggctgagga	gatcagagac	atcgctcgcg	aggttcttaa	gatctatggc	gaatacagcc	600
tcactgactt	catctgcca	ttaaagcattc	tcaaggttgg	aaagtatgag	aaggaggatcg	660
acgacatctt	gaacaagttc	gaccctgtcg	ttgaaaagagt	catcaagaag	cgcctgtgaga	720
tcgtgaggag	gagaaagaac	ggagaggttt	ttgagggtga	gttcagcggg	gtttcccttg	780
acactttgt	tgaattcgct	gaggatgaga	ccacggagat	caaaatcacc	aaggaccaca	840
tcaagggtct	tgttgtcgac	ttttctcgg	caggaataga	ctccacagcg	gtggcaacag	900
agtggcatt	ggcagaactc	atcaacaatc	ctaaggtgtt	ggaaaaggct	cgtgaggagg	960
tctacagtgt	tgtggaaaag	gacagacttg	tggacgaagt	tgacactcaa	aaccttcctt	1020
acattagagc	aatcgtaag	gagacattcc	gcatgcaccc	gccactccca	gtggtcaaaa	1080
gaaagtgcac	agaagagtgt	gagattaatg	gatatgtat	cccagaggga	gcattgattc	1140
tcttcaatgt	atggcaagta	ggaaggggacc	ccaaatactg	ggacagacca	tcggagttcc	1200
gtcctgagag	gttccttagag	acaggggctg	aaggggaagc	aaggccttctt	gatcttaggg	1260
gacaacattt	tcaacttctc	ccattttgggt	ctgggagggg	aatgtgccct	ggagtcaatc	1320
tggctacttc	gggaatggca	acacttctt	catctcttat	tcaatgttt	gacttgcaag	1380
tgctgggtcc	acaaggacag	atattgaagg	gtggtgcacgc	caaagttagc	atgaaagaga	1440
ggccggcct	cactgttcca	agggcacata	gtcttgtctg	tgttccactt	gcaaggatcg	1500
9						1501

<210> 18

<211> 499

<212> PRT

<213> Vicia villosa

<400> 18
 Phe Leu His Leu Arg Pro Thr Pro Thr Ala Lys Ser Lys Ala Leu Arg
 1 5 10 15
 His Leu Pro Asn Pro Pro Ser Pro Lys Pro Arg Leu Pro Phe Ile Gly
 20 25 30
 His Leu His Leu Leu Lys Asp Lys Leu Leu His Tyr Ala Leu Ile Asp
 35 40 45
 Leu Ser Lys Lys His Gly Pro Leu Phe Ser Leu Tyr Phe Gly Ser Met
 50 55 60
 Pro Thr Val Val Ala Ser Thr Pro Glu Leu Phe Lys Leu Phe Leu Gln
 65 70 75 80
 Thr His Glu Ala Thr Ser Phe Asn Thr Arg Phe Gln Thr Ser Ala Ile
 85 90 95
 Arg Arg Leu Thr Tyr Asp Ser Leu Val Ala Met Val Pro Phe Gly Pro
 100 105 110
 Tyr Trp Lys Phe Val Arg Lys Leu Ile Met Asn Asp Leu Leu Asn Ala
 115 120 125
 Thr Thr Val Asn Lys Leu Arg Pro Leu Arg Thr Gln Gln Ile Arg Lys
 130 135 140
 Phe Leu Arg Val Met Ala Gln Gly Ala Glu Ala Gln Lys Pro Leu Asp
 145 150 155 160
 Leu Thr Glu Glu Leu Leu Lys Trp Thr Asn Ser Thr Ile Ser Met Met
 165 170 175
 Met Leu Gly Glu Ala Glu Glu Ile Arg Asp Ile Ala Arg Glu Val Leu
 180 185 190
 Lys Ile Tyr Gly Glu Tyr Ser Leu Thr Asp Phe Ile Trp Pro Leu Lys
 195 200 205
 His Leu Lys Val Gly Lys Tyr Glu Lys Arg Ile Asp Asp Ile Leu Asn
 210 215 220
 Lys Phe Asp Pro Val Val Glu Arg Val Ile Lys Lys Arg Arg Glu Ile
 225 230 235 240
 Val Arg Arg Arg Lys Asn Gly Glu Val Val Glu Gly Glu Val Ser Gly
 245 250 255
 Val Phe Leu Asp Thr Leu Leu Glu Phe Ala Glu Asp Glu Thr Thr Glu
 260 265 270
 Ile Lys Ile Thr Lys Asp His Ile Lys Gly Leu Val Val Asp Phe Phe
 275 280 285
 Ser Ala Gly Ile Asp Ser Thr Ala Val Ala Thr Glu Trp Ala Leu Ala
 290 295 300
 Glu Leu Ile Asn Asn Pro Lys Val Leu Glu Lys Ala Arg Glu Glu Val
 305 310 315 320
 Tyr Ser Val Val Gly Lys Asp Arg Leu Val Asp Glu Val Asp Thr Gln
 325 330 335
 Asn Leu Pro Tyr Ile Arg Ala Ile Val Lys Glu Thr Phe Arg Met His
 340 345 350

Pro Pro Leu Pro Val Val Lys Arg Lys Cys Thr Glu Glu Cys Glu Ile
 355 360 365

Asn Gly Tyr Val Ile Pro Glu Gly Ala Leu Ile Leu Phe Asn Val Trp
 370 375 380

Gln Val Gly Arg Asp Pro Lys Tyr Trp Asp Arg Pro Ser Glu Phe Arg
 385 390 395 400

Pro Glu Arg Phe Leu Glu Thr Gly Ala Glu Gly Glu Ala Arg Pro Leu
 405 410 415

Asp Leu Arg Gly Gln His Phe Gln Leu Leu Pro Phe Gly Ser Gly Arg
 420 425 430

Gly Met Cys Pro Gly Val Asn Leu Ala Thr Ser Gly Met Ala Thr Leu
 435 440 445

Leu Ala Ser Leu Ile Gln Cys Phe Asp Leu Gln Val Leu Gly Pro Gln
 450 455 460

Gly Gln Ile Leu Lys Gly Gly Asp Ala Lys Val Ser Met Glu Glu Arg
 465 470 475 480

Ala Gly Leu Thr Val Pro Arg Ala His Ser Leu Val Cys Val Pro Leu
 485 490 495

Ala Arg Ile

<210> 19

<211> 1501

<212> DNA

<213> Lens culinaris

<400> 19

tgtttctgca cttgcgtccc acacccactg caaaatcaaa agcacttcgc catctcccaa 60
 acccacaag cccaaagcct cgtctccct tcataaggaca ccctcatctc taaaagaca 120
 aacttctcca ctacgcaactc atcgacactt ccaaaaaaca tggtccctta ttctccctct 180
 actttggctc catgccaacc gttgttgccct ccacaccaga attgttcaag ctttccctcc 240
 aaacgcacga ggcaacttcc ttcaacacaaa ggttccaaac ctcagccata agacgcctca 300
 cctatgatag ctcagttggcc atggttccat tcggacctt ctggaaagttc gtgaggaagc 360
 tcactcatgaa cgaccttctc aacgccacca ccgtcaacaa gctcaggcct ttgaggaccc 420
 aacagatccg caagttccctt agggttatgg cccaaagcgc agaggccag aagcccttg 480
 acgtcaccga ggagcttctc aaatggacca acagacccat ctccatgatg atgctcggcg 540
 aggctgagga gatcagagac atcgctcgcg aggttcttaa gatcttcggc gaatacagcc 600
 tcactgactt catctggctt ttgaaagtatc tcaaggttgg aaagtatgag aagaggattg 660
 atgacatctt gaacaagttc gaccctgtcg ttgaaagggtt catcaagaag cgcgtgaga 720
 tcgtcagaag gagaagaac ggagaagttt ttgaggcga ggccagcggc gtcttcctcg 780
 acactttgct tgaattcgct gaggacgaga ccatggagat caaaattacc aaggagcaaa 840
 tcaaggccct ttttgcgtac tttttctctg cagggacaga ttccacagcg gtggcaacag 900
 agtgggcatt ggcagagctc atcaacaatc ccaggggttt gcaaaaggct cgtgaggagg 960
 tctacagtgt tgtggcaaa gataactcg ttgacgaagt tgacactcaa aacttccct 1020
 acattaggc cattgtgaag gagacattcc gaatgcaccc accactccca gtggtcaaaa 1080
 gaaagtgcac agaagagtgt gagattaatg ggcatgtat cccagagggc gcattgggtc 1140
 tttcaatgt ttggcaagta ggaaggggacc ccaaataactg ggacagacca tcagaattcc 1200
 gtcccggagag gttcttagaa actggtgctg aaggggaagc agggcctctt gatcttaggg 1260
 gccagcattt ccaacttcc ccatggggctt ctgggaggag aatgtgcctt ggtgtcaatt 1320
 tggctacttc aggaatggca acacttctt catctttat ccaatgctt gacctgcaag 1380
 tgctgggccc tcaaggacaa atattgaaag gtgatgatgc caaagttgc atgaaagaga 1440
 gagctggcct cacagtccca agggcacata gtctcgttt tgttccactt gcaaggatcg 1500
 g 1501

<210> 20

<211> 499

<212> PRT
 <213> *Lens culinaris*

<400> 20
 Phe Leu His Leu Arg Pro Thr Pro Thr Ala Lys Ser Lys Ala Leu Arg
 1 5 10 15
 His Leu Pro Asn Pro Pro Ser Pro Lys Pro Arg Leu Pro Phe Ile Gly
 20 25 30
 His Pro His Leu Leu Lys Asp Lys Leu Leu His Tyr Ala Leu Ile Asp
 35 40 45
 Leu Ser Lys Lys His Gly Pro Leu Phe Ser Leu Tyr Phe Gly Ser Met
 50 55 60
 Pro Thr Val Val Ala Ser Thr Pro Glu Leu Phe Lys Leu Phe Leu Gln
 65 70 75 80
 Thr His Glu Ala Thr Ser Phe Asn Thr Arg Phe Gln Thr Ser Ala Ile
 85 90 95
 Arg Arg Leu Thr Tyr Asp Ser Ser Val Ala Met Val Pro Phe Gly Pro
 100 105 110
 Tyr Trp Lys Phe Val Arg Lys Leu Ile Met Asn Asp Leu Leu Asn Ala
 115 120 125
 Thr Thr Val Asn Lys Leu Arg Pro Leu Arg Thr Gln Gln Ile Arg Lys
 130 135 140
 Phe Leu Arg Val Met Ala Gln Ser Ala Glu Ala Gln Lys Pro Leu Asp
 145 150 155 160
 Val Thr Glu Glu Leu Leu Lys Trp Thr Asn Ser Thr Ile Ser Met Met
 165 170 175
 Met Leu Gly Glu Ala Glu Glu Ile Arg Asp Ile Ala Arg Glu Val Leu
 180 185 190
 Lys Ile Phe Gly Glu Tyr Ser Leu Thr Asp Phe Ile Trp Pro Leu Lys
 195 200 205
 Tyr Leu Lys Val Gly Lys Tyr Glu Lys Arg Ile Asp Asp Ile Leu Asn
 210 215 220
 Lys Phe Asp Pro Val Val Glu Arg Val Ile Lys Lys Arg Arg Glu Ile
 225 230 235 240
 Val Arg Arg Arg Lys Asn Gly Glu Val Val Glu Gly Glu Ala Ser Gly
 245 250 255
 Val Phe Leu Asp Thr Leu Leu Glu Phe Ala Glu Asp Glu Thr Met Glu
 260 265 270
 Ile Lys Ile Thr Lys Glu Gln Ile Lys Gly Leu Val Val Asp Phe Phe
 275 280 285
 Ser Ala Gly Thr Asp Ser Thr Ala Val Ala Thr Glu Trp Ala Leu Ala
 290 295 300
 Glu Leu Ile Asn Asn Pro Arg Val Leu Gln Lys Ala Arg Glu Glu Val
 305 310 315 320
 Tyr Ser Val Val Gly Lys Asp Ile Leu Val Asp Glu Val Asp Thr Gln
 325 330 335

Asn Leu Pro Tyr Ile Arg Ala Ile Val Lys Glu Thr Phe Arg Met His
 340 345 350

Pro Pro Leu Pro Val Val Lys Arg Lys Cys Thr Glu Glu Cys Glu Ile
 355 360 365

Asn Gly His Val Ile Pro Glu Gly Ala Leu Val Leu Phe Asn Val Trp
 370 375 380

Gln Val Gly Arg Asp Pro Lys Tyr Trp Asp Arg Pro Ser Glu Phe Arg
 385 390 395 400

Pro Glu Arg Phe Leu Glu Thr Gly Ala Glu Gly Glu Ala Gly Pro Leu
 405 410 415

Asp Leu Arg Gly Gln His Phe Gln Leu Leu Pro Phe Gly Ser Gly Arg
 420 425 430

Arg Met Cys Pro Gly Val Asn Leu Ala Thr Ser Gly Met Ala Thr Leu
 435 440 445

Leu Ala Ser Leu Ile Gln Cys Phe Asp Leu Gln Val Leu Gly Pro Gln
 450 455 460

Gly Gln Ile Leu Lys Gly Asp Asp Ala Lys Val Ser Met Glu Glu Arg
 465 470 475 480

Ala Gly Leu Thr Val Pro Arg Ala His Ser Leu Val Cys Val Pro Leu
 485 490 495

Ala Arg Ile

<210> 21

<211> 1501

<212> DNA

<213> Lens culinaris

<400> 21

tgtttctgca	cttgcgtccc	acacccactg	caaaatcaaa	agcacttcgc	catctcccaa	60
accaccaag	cccaaaggct	cgtcttccct	tcataggaca	ccttcatctc	ttaaaagaca	120
aacctctca	ctacgcactc	atcgacctc	ccaaaaaaca	tggccctta	ttctctctct	180
actttggctc	catgccaacc	gttggtcct	ccacaccaga	attgttcaag	ctcttcctcc	240
aaacgcacga	ggcaacttcc	ttaaacacaa	ggttccaaac	ctcagccata	agacgcctca	300
cctatgatag	ctcagtgcc	atggttccct	tccgaccta	ctggaaagt	gtgaggaagc	360
tcatcatgaa	cgaccttctc	aacgccacca	ctgtaaacaa	gttgaggcct	ttgaggaccc	420
aacagatccg	caagttccct	agggttatgg	cccaaggcgc	agaggcacag	aagccccttg	480
acttgaccga	ggagcttctg	aatggacca	acagcaccat	ctccatgatg	gtgctcgccg	540
aggctgagga	gatcagagac	atcgctcgcg	aggttcttaa	gatctttgac	gaatacagcc	600
tcactgactt	catctggcca	ttgaagcatt	tcaaggttgg	aaagtatgag	aagaggatcg	660
acgacatctt	gaacaagttc	gaccctgtcg	ttgaaagagt	catcaagaag	cgcctgtaga	720
tcgtgaggag	gagaaagaac	ggagagggtt	ttgagggtga	gttcagcggg	gtttccttg	780
acatcttgc	tgaattcgct	gaggatgaga	ccatggagat	caaatacacc	aaggaccaca	840
tcaagggtct	tgttgcgac	tttttctcg	caggaacaga	ctccacagcgc	gtggcaacag	900
agtgggcatt	ggcagaactc	atcaacaatc	ctaagggttt	ggaaaaggct	cgtgaggagg	960
tctacagtgt	tgtggaaaag	gacagacttg	tggacaagt	tgacactcaa	aactttcctt	1020
acattagagc	aatcgtaag	gagacattcc	gcatgcaccc	gccactccca	gtggtcaaaa	1080
gaaagtgcac	agaagagtgt	gagattaatg	gatgtgtgac	cccgagggaa	gcatgtttc	1140
tcttcaatgt	atggcaagta	ggaagagacc	ccaaatactg	ggacagacca	tcggagttcc	1200
gtcctgagag	gttccttagag	acaggggctg	aaggggaaagc	aaggccttt	gatcttaggg	1260
gacgacattt	tcaacttctc	ccatttgggt	ctgggaggag	aatgtccctt	ggagtcaatc	1320
tggctacttc	gggaatggca	acacttcttg	catctttat	tcaagtgcctt	gacttgcagg	1380
tgctgggtcc	acaaggacag	atattgaagg	gtggtgacgc	caaagtttagc	atgaaagaga	1440
gagccggct	cactgttcca	agggcacata	gtcttgtctg	tgttccactt	gcaaggatcg	1500
	g					1501

<210> 22
 <211> 499
 <212> PRT
 <213> *Lens culinaris*

<400> 22
 Phe Leu His Leu Arg Pro Thr Pro Thr Ala Lys Ser Lys Ala Leu Arg
 1 5 10 15
 His Leu Pro Asn Pro Pro Ser Pro Lys Pro Arg Leu Pro Phe Ile Gly
 20 25 30
 His Leu His Leu Leu Lys Asp Lys Leu Leu His Tyr Ala Leu Ile Asp
 35 40 45
 Leu Ser Lys Lys His Gly Pro Leu Phe Ser Leu Tyr Phe Gly Ser Met
 50 55 60
 Pro Thr Val Val Ala Ser Thr Pro Glu Leu Phe Lys Leu Phe Leu Gln
 65 70 75 80
 Thr His Glu Ala Thr Ser Phe Asn Thr Arg Phe Gln Thr Ser Ala Ile
 85 90 95
 Arg Arg Leu Thr Tyr Asp Ser Ser Val Ala Met Val Pro Phe Gly Pro
 100 105 110
 Tyr Trp Lys Phe Val Arg Lys Leu Ile Met Asn Asp Leu Leu Asn Ala
 115 120 125
 Thr Thr Val Asn Lys Leu Arg Pro Leu Arg Thr Gln Gln Ile Arg Lys
 130 135 140
 Phe Leu Arg Val Met Ala Gln Gly Ala Glu Ala Gln Lys Pro Leu Asp
 145 150 155 160
 Leu Thr Glu Glu Leu Leu Lys Trp Thr Asn Ser Thr Ile Ser Met Met
 165 170 175
 Val Leu Gly Glu Ala Glu Glu Ile Arg Asp Ile Ala Arg Glu Val Leu
 180 185 190
 Lys Ile Phe Gly Glu Tyr Ser Leu Thr Asp Phe Ile Trp Pro Leu Lys
 195 200 205
 His Leu Lys Val Gly Lys Tyr Glu Lys Arg Ile Asp Asp Ile Leu Asn
 210 215 220
 Lys Phe Asp Pro Val Val Glu Arg Val Ile Lys Lys Arg Arg Glu Ile
 225 230 235 240
 Val Arg Arg Arg Lys Asn Gly Glu Val Val Glu Gly Glu Val Ser Gly
 245 250 255
 Val Phe Leu Asp Thr Leu Leu Glu Phe Ala Glu Asp Glu Thr Met Glu
 260 265 270
 Ile Lys Ile Thr Lys Asp His Ile Lys Gly Leu Val Val Asp Phe Phe
 275 280 285
 Ser Ala Gly Thr Asp Ser Thr Ala Val Ala Thr Glu Trp Ala Leu Ala
 290 295 300
 Glu Leu Ile Asn Asn Pro Lys Val Leu Glu Lys Ala Arg Glu Glu Val
 305 310 315 320

Tyr Ser Val Val Gly Lys Asp Arg Leu Val Asp Glu Val Asp Thr Gln
 325 330 335

Asn Leu Pro Tyr Ile Arg Ala Ile Val Lys Glu Thr Phe Arg Met His
 340 345 350

Pro Pro Leu Pro Val Val Lys Arg Lys Cys Thr Glu Glu Cys Glu Ile
 355 360 365

Asn Gly Cys Val Thr Pro Glu Gly Ala Leu Ile Leu Phe Asn Val Trp
 370 375 380

Gln Val Gly Arg Asp Pro Lys Tyr Trp Asp Arg Pro Ser Glu Phe Arg
 385 390 395 400

Pro Glu Arg Phe Leu Glu Thr Gly Ala Glu Gly Glu Ala Arg Pro Leu
 405 410 415

Asp Leu Arg Gly Arg His Phe Gln Leu Leu Pro Phe Gly Ser Gly Arg
 420 425 430

Arg Met Cys Pro Gly Val Asn Leu Ala Thr Ser Gly Met Ala Thr Leu
 435 440 445

Leu Ala Ser Leu Ile Gln Cys Phe Asp Leu Gln Val Leu Gly Pro Gln
 450 455 460

Gly Gln Ile Leu Lys Gly Gly Asp Ala Lys Val Ser Met Glu Glu Arg
 465 470 475 480

Ala Gly Leu Thr Val Pro Arg Ala His Ser Leu Val Cys Val Pro Leu
 485 490 495

Ala Arg Ile

<210> 23

<211> 1566

<212> DNA

<213> Phaseolus aureus

<400> 23

atgttgctgg aacttgcact tggtttattt gttttggctc tggtttctgca cttgcgtccc 60
 actcccactg caaaatcaa agcacttcgc catctccaa acccaccaag cccaaaggct 120
 cgtcttccct tcataggaca ccttcatctc ttaaaagaca aacttctcca ctacgcactc 180
 atcgacctct ccaaaaaaca tggtccctta ttctctctt actttggctc catgccaacc 240
 gttgttgccct ccacaccaga attgttcaag ctcttcctcc aaacgcacga ggcaacttcc 300
 ttcaacacaa gttccaaac ctcagccata agacgcctca cctatgatag ctcagtgccc 360
 atggttccct tcggaccta ctggaaagttc gtgaggaagc tcatcatgaa cgaccccttc 420
 aacgcacca ctgtaaacaa gttgagggctt ttgaggaccc aacagatccg caagttccctt 480
 agggttatgg cccaaaggcgc agaggcacag aagcccttg acttgaccga ggagcttctg 540
 aaatggacca acagcaccat ctccatgatg atgctcgccg aggctgagga gatcagagac 600
 atcgctcgcg aggttcttaa gatctttggc gaatacagcc tcactgactt catctggcca 660
 ttgaaggcatc tcaagggttgg aaagtatgag aagaggatcg acgacatctt gaacaagttc 720
 gaccctgtcg ttgaaagagt catcaagaag cgcgtgaga tcgtgaggag gagaagaagac 780
 ggagagggtt ttgagggtga ggtcagcggg gtttccctt acatcttgc tgaattcgct 840
 gagatgaga ccatggagat caaaatcacc aaggaccaca tcaagggtct tgggtcgac 900
 ttttctcggt caggaacaga ctcacacagcg gtggcaacag agtgggcatt ggcagaactc 960
 atcaacaatc ctaagggtttt gaaaaaggct cgtgaggagg cctacagtgt tggggaaag 1020
 gacagacttg tggacgaagt tgacactcaa aaccttcctt acatttagagc aatcgtaag 1080
 gagacattcc gcatgcaccc gccactccca gtggcaaaa gaaagtgcac agaagagtgt 1140
 gagattaatg gatatgtat cccagaggga gcattgattc tcttcaatgt atggcaagta 1200
 ggaagagacc ccaaatactg ggacagacca tcggagttcc gtcctgagag gttcttagag 1260
 acaggggctg aaggggaaagc aaggcctt gatcttaggg gacaacattt tcaacttctc 1320
 ccatttgggtt ctgggaggag aatgtgccct ggagtcaatc tggctacttc gggatggca 1380

acacttctcg catctttat tcagtgcctt gacttgcaag tgctgggtcc acaaggacag 1440
 atattgaagg gtggtagcgc caaagttgc atgaaagaga gagccggcct cactgttcca 1500
 agggcacata gtcttgtctg tgttccactt gcaaggatcg gcgttgcac taaactcctt 1560
 tctaaa 1566

<210> 24
 <211> 522
 <212> PRT
 <213> Phaseolus aureus

<400> 24
 Met Leu Leu Glu Leu Ala Leu Gly Leu Leu Val Leu Ala Leu Phe Leu
 1 5 10 15
 His Leu Arg Pro Thr Pro Thr Ala Lys Ser Lys Ala Leu Arg His Leu
 20 25 30
 Pro Asn Pro Pro Ser Pro Lys Pro Arg Leu Pro Phe Ile Gly His Leu
 35 40 45
 His Leu Leu Lys Asp Lys Leu Leu His Tyr Ala Leu Ile Asp Leu Ser
 50 55 60
 Lys Lys His Gly Pro Leu Phe Ser Leu Tyr Phe Gly Ser Met Pro Thr
 65 70 75 80
 Val Val Ala Ser Thr Pro Glu Leu Phe Lys Leu Phe Leu Gln Thr His
 85 90 95
 Glu Ala Thr Ser Phe Asn Thr Arg Phe Gln Thr Ser Ala Ile Arg Arg
 100 105 110
 Leu Thr Tyr Asp Ser Ser Val Ala Met Val Pro Phe Gly Pro Tyr Trp
 115 120 125
 Lys Phe Val Arg Lys Leu Ile Met Asn Asp Leu Leu Asn Ala Thr Thr
 130 135 140
 Val Asn Lys Leu Arg Pro Leu Arg Thr Gln Gln Ile Arg Lys Phe Leu
 145 150 155 160
 Arg Val Met Ala Gln Gly Ala Glu Ala Gln Lys Pro Leu Asp Leu Thr
 165 170 175
 Glu Glu Leu Leu Lys Trp Thr Asn Ser Thr Ile Ser Met Met Met Leu
 180 185 190
 Gly Glu Ala Glu Glu Ile Arg Asp Ile Ala Arg Glu Val Leu Lys Ile
 195 200 205
 Phe Gly Glu Tyr Ser Leu Thr Asp Phe Ile Trp Pro Leu Lys His Leu
 210 215 220
 Lys Val Gly Lys Tyr Glu Lys Arg Ile Asp Asp Ile Leu Asn Lys Phe
 225 230 235 240
 Asp Pro Val Val Glu Arg Val Ile Lys Lys Arg Arg Glu Ile Val Arg
 245 250 255
 Arg Arg Lys Asn Gly Glu Val Val Glu Gly Glu Val Ser Gly Val Phe
 260 265 270
 Leu Asp Thr Leu Leu Glu Phe Ala Glu Asp Glu Thr Met Glu Ile Lys
 275 280 285

Ile Thr Lys Asp His Ile Lys Gly Leu Val Val Asp Phe Phe Ser Ala
 290 295 300
 Gly Thr Asp Ser Thr Ala Val Ala Thr Glu Trp Ala Leu Ala Glu Leu
 305 310 315 320
 Ile Asn Asn Pro Lys Val Leu Glu Lys Ala Arg Glu Glu Ala Tyr Ser
 325 330 335
 Val Val Gly Lys Asp Arg Leu Val Asp Glu Val Asp Thr Gln Asn Leu
 340 345 350
 Pro Tyr Ile Arg Ala Ile Val Lys Glu Thr Phe Arg Met His Pro Pro
 355 360 365
 Leu Pro Val Val Lys Arg Lys Cys Thr Glu Glu Cys Glu Ile Asn Gly
 370 375 380
 Tyr Val Ile Pro Glu Gly Ala Leu Ile Leu Phe Asn Val Trp Gln Val
 385 390 395 400
 Gly Arg Asp Pro Lys Tyr Trp Asp Arg Pro Ser Glu Phe Arg Pro Glu
 405 410 415
 Arg Phe Leu Glu Thr Gly Ala Glu Gly Glu Ala Arg Pro Leu Asp Leu
 420 425 430
 Arg Gly Gln His Phe Gln Leu Leu Pro Phe Gly Ser Gly Arg Arg Met
 435 440 445
 Cys Pro Gly Val Asn Leu Ala Thr Ser Gly Met Ala Thr Leu Leu Ala
 450 455 460
 Ser Leu Ile Gln Cys Phe Asp Leu Gln Val Leu Gly Pro Gln Gly Gln
 465 470 475 480
 Ile Leu Lys Gly Gly Asp Ala Lys Val Ser Met Glu Glu Arg Ala Gly
 485 490 495
 Leu Thr Val Pro Arg Ala His Ser Leu Val Cys Val Pro Leu Ala Arg
 500 505 510
 Ile Gly Val Ala Ser Lys Leu Leu Ser Lys
 515 520
 <210> 25
 <211> 1566
 <212> DNA
 <213> Phaseolus aureus
 <400> 25
 attttgcact tggtttattt gttttggctc tttttctgca cttgcgtccc 60
 acacccactg caaaatcaaa agcacttcgc catctccaa acccaccaag cccaaaggct 120
 cgtcttccct tcataggaca cttcatctc taaaaagaca aacttctcca ctacgcgctc 180
 atcgacctct ccaaaaaaca tggtccctta ttctctctt actttggctc catgccaacc 240
 gttgttgcct ccacaccaga attgttcaag ctcttccctt aaacgcacga ggcaacttcc 300
 ttcaacacaa ggttccaaac ctcagccata agacgcctca cctatgatag ctcagtggcc 360
 atgttccct tcggaccta ctggaaatttgc ttggagaagg tcatacatgaa cgaccctctc 420
 aacgcacca ctgtaaacaa gttggggctt ttggaggacc aacagatccg caagttcctt 480
 aggctatgg cccaaaggcgc agaggcacag aagcccttg acttgaccga ggagcttctg 540
 aatggacca acagcaccat ctccatgatg atgctcgccg aggctgagga gatcagagac 600
 atcgctcgcg aggttcttaa gatctttggc gaatacagcc tcaactgactt catctggcca 660
 ttgaaggatc tcaagggttgg aaagtatgag aagaggatcg acgacatctt gaacaaggttc 720
 gaccctgtcg ttgaaagagt catcaagaag cggcggtgaga tcgtgaggag gagaaagaac 780
 ggagagggttg ttgagggtga ggtcagcggg gtttccctt acactttgtc tgaattcgct 840
 gaggatgaga ccatggagat caaaatcacc aaggaccaca tcaagggtct tgggtcgac 900

tttttctcg caggaacaga ctccacagcg gtggcaacag agtgggcatt ggcagaactc 960
 atcaacaatc ctaagggtgtt gaaaaaggct cgtgaggagg tctacagtgt tggggaaag 1020
 gacagacttg tggacgaagt tgacactcaa aacccctcctt acattagagc aatcgtaag 1080
 gagacattcc gcatgcaccc gccactccca gtggtcaaaa gaaagtgcac ggaagagtgt 1140
 gagattaatg gatatgtat cccagagggc gcattgattc tcttcaatgt atggcaagta 1200
 ggaagagacc ccaaatactg ggacagacca tcggagtcc gtcctgagag gttcctagag 1260
 acaggggctg aaggggaaagc aaggccttt gatcttaggg gacaacattt tcaacttctc 1320
 ccatttgggt ctgggaggag aatgtgccct ggagtcaatc tggctacttc gggaaatggca 1380
 acacttcttg catctttat tcaagtgcctt gacttgcaag tgctgggtcc acaaggacag 1440
 atattgaagg gtggtgacgc caaagttagc atggaaagaga gagccggcct cactgttcca 1500
 agggcacata gtcttgtctg tgttccactt gcaaggatcg gcgttgcattc taaactcctt 1560
 tcttaa 1566

<210> 26
 <211> 521
 <212> PRT
 <213> Phaseolus aureus

<400> 26
 Met Leu Leu Glu Leu Ala Leu Gly Leu Leu Val Leu Ala Leu Phe Leu
 1 5 10 15
 His Leu Arg Pro Thr Pro Thr Ala Lys Ser Lys Ala Leu Arg His Leu
 20 25 30
 Pro Asn Pro Pro Ser Pro Lys Pro Arg Leu Pro Phe Ile Gly His Leu
 35 40 45
 His Leu Leu Lys Asp Lys Leu Leu His Tyr Ala Leu Ile Asp Leu Ser
 50 55 60
 Lys Lys His Gly Pro Leu Phe Ser Leu Tyr Phe Gly Ser Met Pro Thr
 65 70 75 80
 Val Val Ala Ser Thr Pro Glu Leu Phe Lys Leu Phe Leu Gln Thr His
 85 90 95
 Glu Ala Thr Ser Phe Asn Thr Arg Phe Gln Thr Ser Ala Ile Arg Arg
 100 105 110
 Leu Thr Tyr Asp Ser Ser Val Ala Met Val Pro Phe Gly Pro Tyr Trp
 115 120 125
 Lys Phe Val Arg Lys Leu Ile Met Asn Asp Leu Leu Asn Ala Thr Thr
 130 135 140
 Val Asn Lys Leu Arg Pro Leu Arg Thr Gln Gln Ile Arg Lys Phe Leu
 145 150 155 160
 Arg Ala Met Ala Gln Gly Ala Glu Ala Gln Lys Pro Leu Asp Leu Thr
 165 170 175
 Glu Glu Leu Leu Lys Trp Thr Asn Ser Thr Ile Ser Met Met Met Leu
 180 185 190
 Gly Glu Ala Glu Glu Ile Arg Asp Ile Ala Arg Glu Val Leu Lys Ile
 195 200 205
 Phe Gly Glu Tyr Ser Leu Thr Asp Phe Ile Trp Pro Leu Lys His Leu
 210 215 220
 Lys Val Gly Lys Tyr Glu Lys Arg Ile Asp Asp Ile Leu Asn Lys Phe
 225 230 235 240
 Asp Pro Val Val Glu Arg Val Ile Lys Lys Arg Arg Glu Ile Val Arg
 245 250 255

Arg Arg Lys Asn Gly Glu Val Val Glu Gly Glu Val Ser Gly Val Phe
260 265 270

Leu Asp Thr Leu Leu Glu Phe Ala Glu Asp Glu Thr Met Glu Ile Lys
275 280 285

Ile Thr Lys Asp His Ile Lys Gly Leu Val Val Asp Phe Phe Ser Ala
290 295 300

Gly Thr Asp Ser Thr Ala Val Ala Thr Glu Trp Ala Leu Ala Glu Leu
305 310 315 320

Ile Asn Asn Pro Lys Val Leu Glu Lys Ala Arg Glu Glu Val Tyr Ser
325 330 335

Val Val Gly Lys Asp Arg Leu Val Asp Glu Val Asp Thr Gln Asn Leu
340 345 350

Pro Tyr Ile Arg Ala Ile Val Lys Glu Thr Phe Arg Met His Pro Pro
355 360 365

Leu Pro Val Val Lys Arg Lys Cys Thr Glu Glu Cys Glu Ile Asn Gly
370 375 380

Tyr Val Ile Pro Glu Gly Ala Leu Ile Leu Phe Asn Val Trp Gln Val
385 390 395 400

Gly Arg Asp Pro Lys Tyr Trp Asp Arg Pro Ser Glu Phe Arg Pro Glu
405 410 415

Arg Phe Leu Glu Thr Gly Ala Glu Gly Glu Ala Arg Pro Leu Asp Leu
420 425 430

Arg Gly Gln His Phe Gln Leu Leu Pro Phe Gly Ser Gly Arg Arg Met
435 440 445

Cys Pro Gly Val Asn Leu Ala Thr Ser Gly Met Ala Thr Leu Leu Ala
450 455 460

Ser Leu Ile Gln Cys Phe Asp Leu Gln Val Leu Gly Pro Gln Gly Gln
465 470 475 480

Ile Leu Lys Gly Gly Asp Ala Lys Val Ser Met Glu Glu Arg Ala Gly
485 490 495

Leu Thr Val Pro Arg Ala His Ser Leu Val Cys Val Pro Leu Ala Arg
500 505 510

Ile Gly Val Ala Ser Lys Leu Leu Ser
515 520

<210> 27

<211> 1566

<212> DNA

<213> Phaseolus aureus

<400> 27

atgttgctgg aacttgcact tggtttattg gttttggctc tggttctgca ctgcgtccc 60
acacccactg caaaatcaaa agcacttcgc catctcccaa acccaccaag cccaaaggct 120
cgcttccct tcataaggaca ccttcatctc ttaaaaagaca aacttctcca ctacgcactc 180
atcgacacct ccaaaaaaca tggccctta ttctctctt actttggctc catgccaacc 240
gttggccct ccacaccaga attgttcaag ctcttcctcc aaacgcacga ggcaacttcc 300
ttcaacacaa ggttccaaac ctcagccata agacgcctca cctatgatag ctcagtgcc 360
atggttccct tcggacctta ctggaagttc gtgaggaagc tcatacatgaa cgaccttctc 420
aacgccacca ctgtaaacaa gttgaggcct ttgaggaccc aacagatccg caagttcctt 480

agggttatgg cccaaggcgc agaggcacag aagccccttg acttgaccga ggagcttctg 540
 aaatggacca acagcaccat ctccatgatg atgctcgcg aggctgagga gatcagagac 600
 atcgctcgcg aggttcttaa gatcttggc gaatacagcc tcactgactt catctggcca 660
 ttgaagcata tcaagggttg aaagtatgag aagaggatcg acgacatctt gaacaagtcc 720
 gaccctgtcg ttgaaagagt catcaagaag cgccgtgaga tcgtgaggag gaaaagaac 780
 ggagaggttg ttgagggtga ggtcagcggg gtttccctt acactttct tgaattcgct 840
 gaggatgaga ccacggagat caaaatcacc aaggaccaca tcaagggtt tgggtcgac 900
 ttttctcg caggaacaga ctccacagcg gtggcaacag agtgggcatt ggcagaactc 960
 atcaacaatc ctaagggttt ggaaaaggct cgtgaggagg tctacagttt tggggaaag 1020
 gacagacttg tggacgaagt tgacactcaa aaccttcctt acattagagc aatcgtgaag 1080
 gagacattcc gcatgcaccc gccactccca gtggtaaaaa gaaagtgcac agaagagtgt 1140
 gagattaatg gatatgtat cccagagggc gcattgattc tcttcaatgt atggcaagta 1200
 ggaagagacc ccaaatactg ggacagacca tcggagttcc gtcctgagag gttccttagag 1260
 acaggggctg aaggggaagc aaggccttctt gatcttaggg gacaacattt tcaacttctc 1320
 ccatttgggt ctgggaggag aatgtgcctt ggagtcaatc tggctacttc gggaatggca 1380
 acacttcctt catctttat tcagtgcctt gacttgcaag tgctgggtcc acaaggacag 1440
 atattgaagg gtggtgacgc caaagttagc atggaagaga gggccggcct cactgttcca 1500
 agggcataca gtcttgctg tggccactt gcaaggatcg gcgttgcac taaactcctt 1560
 tcttaa 1566

<210> 28

<211> 521

<212> PRT

<213> Phaseolus aureus

<400> 28

Met	Leu	Leu	Glu	Leu	Ala	Leu	Gly	Leu	Leu	Val	Leu	Ala	Leu	Phe	Leu
1															
														10	15

His	Leu	Arg	Pro	Thr	Pro	Thr	Ala	Lys	Ser	Lys	Ala	Leu	Arg	His	Leu	
														20	25	30

Pro	Asn	Pro	Pro	Ser	Pro	Lys	Pro	Arg	Leu	Pro	Phe	Ile	Gly	His	Leu	
														35	40	45

His	Leu	Leu	Lys	Asp	Lys	Leu	Leu	His	Tyr	Ala	Leu	Ile	Asp	Leu	Ser	
														50	55	60

Lys	Lys	His	Gly	Pro	Leu	Phe	Ser	Leu	Tyr	Phe	Gly	Ser	Met	Pro	Thr		
														65	70	75	80

Val	Val	Ala	Ser	Thr	Pro	Glu	Leu	Phe	Lys	Leu	Phe	Leu	Gln	Thr	His	
														85	90	95

Glu	Ala	Thr	Ser	Phe	Asn	Thr	Arg	Phe	Gln	Thr	Ser	Ala	Ile	Arg	Arg	
														100	105	110

Leu	Thr	Tyr	Asp	Ser	Ser	Val	Ala	Met	Val	Pro	Phe	Gly	Pro	Tyr	Trp	
														115	120	125

Lys	Phe	Val	Arg	Lys	Leu	Ile	Met	Asn	Asp	Leu	Leu	Asn	Ala	Thr	Thr	
														130	135	140

Val	Asn	Lys	Leu	Arg	Pro	Leu	Arg	Thr	Gln	Gln	Ile	Arg	Lys	Phe	Leu		
														145	150	155	160

Arg	Val	Met	Ala	Gln	Gly	Ala	Glu	Ala	Gln	Lys	Pro	Leu	Asp	Leu	Thr	
														165	170	175

Glu	Glu	Leu	Leu	Lys	Trp	Thr	Asn	Ser	Thr	Ile	Ser	Met	Met	Met	Leu	
														180	185	190

Gly	Glu	Ala	Glu	Glu	Ile	Arg	Asp	Ile	Ala	Arg	Glu	Val	Leu	Lys	Ile	
														195	200	205

Phe Gly Glu Tyr Ser Leu Thr Asp Phe Ile Trp Pro Leu Lys His Leu
 210 215 220
 Lys Val Gly Lys Tyr Glu Lys Arg Ile Asp Asp Ile Leu Asn Lys Phe
 225 230 235 240
 Asp Pro Val Val Glu Arg Val Ile Lys Lys Arg Arg Glu Ile Val Arg
 245 250 255
 Arg Arg Lys Asn Gly Glu Val Val Glu Gly Glu Val Ser Gly Val Phe
 260 265 270
 Leu Asp Thr Leu Leu Glu Phe Ala Glu Asp Glu Thr Thr Glu Ile Lys
 275 280 285
 Ile Thr Lys Asp His Ile Lys Gly Leu Val Val Asp Phe Phe Ser Ala
 290 295 300
 Gly Thr Asp Ser Thr Ala Val Ala Thr Glu Trp Ala Leu Ala Glu Leu
 305 310 315 320
 Ile Asn Asn Pro Lys Val Leu Glu Lys Ala Arg Glu Glu Val Tyr Ser
 325 330 335
 Val Val Gly Lys Asp Arg Leu Val Asp Glu Val Asp Thr Gln Asn Leu
 340 345 350
 Pro Tyr Ile Arg Ala Ile Val Lys Glu Thr Phe Arg Met His Pro Pro
 355 360 365
 Leu Pro Val Val Lys Arg Lys Cys Thr Glu Glu Cys Glu Ile Asn Gly
 370 375 380
 Tyr Val Ile Pro Glu Gly Ala Leu Ile Leu Phe Asn Val Trp Gln Val
 385 390 395 400
 Gly Arg Asp Pro Lys Tyr Trp Asp Arg Pro Ser Glu Phe Arg Pro Glu
 405 410 415
 Arg Phe Leu Glu Thr Gly Ala Glu Gly Glu Ala Arg Pro Leu Asp Leu
 420 425 430
 Arg Gly Gln His Phe Gln Leu Leu Pro Phe Gly Ser Gly Arg Arg Met
 435 440 445
 Cys Pro Gly Val Asn Leu Ala Thr Ser Gly Met Ala Thr Leu Leu Ala
 450 455 460
 Ser Leu Ile Gln Cys Phe Asp Leu Gln Val Leu Gly Pro Gln Gly Gln
 465 470 475 480
 Ile Leu Lys Gly Gly Asp Ala Lys Val Ser Met Glu Glu Arg Ala Gly
 485 490 495
 Leu Thr Val Pro Arg Ala His Ser Leu Val Cys Val Pro Leu Ala Arg
 500 505 510
 Ile Gly Val Ala Ser Lys Leu Leu Ser
 515 520
 <210> 29
 <211> 1566
 <212> DNA
 <213> Phaseolus aureus

<400> 29

atgttgctgg aacttgcact tggtttattt gttttggctc tgtttctgca cttgcgtccc 60
 acacccactg caaaatcaaa agcacttcgc catctccaa acccaccbaag cccaaagcct 120
 cgtcttccct tcataaggaca ccttcatctc taaaagaca aacttctcca ctacgcactc 180
 atcgacacttc ccaaaaaaca tggccctta ttctctctc accttggctc catgccaacc 240
 gttgtgcct ccacaccaga attgttcaag ctcttctcc aaacgcacga ggcaacttcc 300
 ttcacacaa gttccaaac ctcagccata agacgcctca cctatgatag ctcagtgccc 360
 atggttccct tcggaccta ctggaaagttc gtgaggaagc tcatcatgaa cgacccctc 420
 aacgccacca ctgtaaacaa gttgaggcct ttgaggacc aacagatccg caagttccct 480
 agggttatgg cccaaaggcgc agaggcacag aagcccttg acttgaccga ggagcttctg 540
 aatatggacca acagcaccat ctccatgtat atgctcgccg aggctgagga gatcagagac 600
 atcgctcgcg aggttcttaa gatcttggc gaatacagcc tcactgactt catctggcca 660
 ttgaagcatt tcaaggttgg aaagtatgag aagaggatcg acgacatctt gaacaagttc 720
 gaccctgtcg ttgaaagagt catcaagaag cgccgtgaga tcgtgaggag gagaagaac 780
 ggagagggtt gtgagggtga gtcagcggg gtttcccttg acacttgc tgaattcgct 840
 gaggatgaga ccatggagat caaaatcacc aaggaccaca tcaagggtct tgggtcgac 900
 ttttctcg caggaacaga ctccacagcg gaggcaacag agtgggcatt ggccagaactc 960
 atcaacaatc ctaaggtgtt gaaaagggtt cgtgaggagg tctacagtgt tggggaaag 1020
 gacagacttg tggacaaggatc tggacactcaa aacccctt acattagagc aatcgtgaag 1080
 gagacattcc gcatgcaccc gccactccca gtggtaaaaa gaaagtgcac agaagagtgt 1140
 gagattaatg gatatgtat cccagagggc gcatgttgc tcttcaatgt atggcaagta 1200
 ggaagagagcc ccaaatactg ggacagacca tcggagttcc gtcctgagag gttcttagag 1260
 acaggggctg aaggggaagc aaggccttt gatcttaggg gacaacattt tcaacttctc 1320
 ccatttgggt ctgggaggag aatgtccctt ggagtcaatc tggctacttc gggatggca 1380
 acacttcttg catctttat tcagtgctt gacttgcaag tgctgggtcc acaaggacag 1440
 atattgaagg gtggtgcgc caaagttagc atgaaagaga gagccggct cactgttcca 1500
 agggcacata gtcttgc tgggtccactt gcaaggatcg gcgttgcatt taaactcctt 1560
 tcttaa 1566

<210> 30

<211> 521

<212> PRT

<213> Phaseolus aureus

<400> 30

Met Leu Leu Glu Leu Ala Leu Gly Leu Leu Val Leu Ala Leu Phe Leu
 1 5 10 15

His Leu Arg Pro Thr Pro Thr Ala Lys Ser Lys Ala Leu Arg His Leu
 20 25 30

Pro Asn Pro Pro Ser Pro Lys Pro Arg Leu Pro Phe Ile Gly His Leu
 35 40 45

His Leu Leu Lys Asp Lys Leu Leu His Tyr Ala Leu Ile Asp Leu Ser
 50 55 60

Lys Lys His Gly Pro Leu Phe Ser Leu Tyr Phe Gly Ser Met Pro Thr
 65 70 75 80

Val Val Ala Ser Thr Pro Glu Leu Phe Lys Leu Phe Leu Gln Thr His
 85 90 95

Glu Ala Thr Ser Phe Asn Thr Arg Phe Gln Thr Ser Ala Ile Arg Arg
 100 105 110

Leu Thr Tyr Asp Ser Ser Val Ala Met Val Pro Phe Gly Pro Tyr Trp
 115 120 125

Lys Phe Val Arg Lys Leu Ile Met Asn Asp Leu Leu Asn Ala Thr Thr
 130 135 140

Val Asn Lys Leu Arg Pro Leu Arg Thr Gln Gln Ile Arg Lys Phe Leu
 145 150 155 160

Arg Val Met Ala Gln Gly Ala Glu Ala Gln Lys Pro Leu Asp Leu Thr
 165 170 175
 Glu Glu Leu Leu Lys Trp Thr Asn Ser Thr Ile Ser Met Met Met Leu
 180 185 190
 Gly Glu Ala Glu Glu Ile Arg Asp Ile Ala Arg Glu Val Leu Lys Ile
 195 200 205
 Phe Gly Glu Tyr Ser Leu Thr Asp Phe Ile Trp Pro Leu Lys His Leu
 210 215 220
 Lys Val Gly Lys Tyr Glu Lys Arg Ile Asp Asp Ile Leu Asn Lys Phe
 225 230 235 240
 Asp Pro Val Val Glu Arg Val Ile Lys Lys Arg Arg Glu Ile Val Arg
 245 250 255
 Arg Arg Lys Asn Gly Glu Val Val Glu Gly Glu Val Ser Gly Val Phe
 260 265 270
 Leu Asp Thr Leu Leu Glu Phe Ala Glu Asp Glu Thr Met Glu Ile Lys
 275 280 285
 Ile Thr Lys Asp His Ile Lys Gly Leu Val Val Asp Phe Phe Ser Ala
 290 295 300
 Gly Thr Asp Ser Thr Ala Glu Ala Thr Glu Trp Ala Leu Ala Glu Leu
 305 310 315 320
 Ile Asn Asn Pro Lys Val Leu Glu Lys Ala Arg Glu Glu Val Tyr Ser
 325 330 335
 Val Val Gly Lys Asp Arg Leu Val Asp Glu Val Asp Thr Gln Asn Leu
 340 345 350
 Pro Tyr Ile Arg Ala Ile Val Lys Glu Thr Phe Arg Met His Pro Pro
 355 360 365
 Leu Pro Val Val Lys Arg Lys Cys Thr Glu Glu Cys Glu Ile Asn Gly
 370 375 380
 Tyr Val Ile Pro Glu Gly Ala Leu Ile Leu Phe Asn Val Trp Gln Val
 385 390 395 400
 Gly Arg Asp Pro Lys Tyr Trp Asp Arg Pro Ser Glu Phe Arg Pro Glu
 405 410 415
 Arg Phe Leu Glu Thr Gly Ala Glu Gly Glu Ala Arg Pro Leu Asp Leu
 420 425 430
 Arg Gly Gln His Phe Gln Leu Leu Pro Phe Gly Ser Gly Arg Arg Met
 435 440 445
 Cys Pro Gly Val Asn Leu Ala Thr Ser Gly Met Ala Thr Leu Leu Ala
 450 455 460
 Ser Leu Ile Gln Cys Phe Asp Leu Gln Val Leu Gly Pro Gln Gly Gln
 465 470 475 480
 Ile Leu Lys Gly Gly Asp Ala Lys Val Ser Met Glu Glu Arg Ala Gly
 485 490 495
 Leu Thr Val Pro Arg Ala His Ser Leu Val Cys Val Pro Leu Ala Arg
 500 505 510

Ile Gly Val Ala Ser Lys Leu Leu Ser
515 520

<210> 31
<211> 1566
<212> DNA
<213> Trifolium pratense

<400> 31
atgttgcgtgg aacttgcact tggtttattt gttttggctc tgtttctgca cttgcgtccc 60
acacccactg caaaaatcaaa agcacttcgc catctcccaa acccaccaag cccaaagcct 120
cgtctccct tcataaggaca cttcatctc taaaagaca aacttctcca ctacgcactc 180
atcgacctct ccaaaaaaca tggtccctta ttctctctt actttggctc catgccaacc 240
gttggcgctt ccacaccaga attgttcaag ctcttcctcc aaacgcacga ggcaacttcc 300
ttcaacaccaa ggttccaaac ctcagccata agacgcctca cctatgatag ctcagtggcc 360
atgttccca tcggaccta ctggaaagtcc gtgaggaaagc tcatcatgaa cgacccctc 420
aaggccacca ctgttaaacaac gttgaggccct ttgaggaccc aacagatccg caagttcctt 480
agggttatgg cccaaaggcgc agaggccacag aagcccttg acttgaccga ggagcttctg 540
aaatggacca acagcaccat ctccatgatg atgctcgcc aggctgagga gatcagagac 600
atcgctcgcg aggttcttaa gatcttggc gaatacagcc tcaactgactt catctggcca 660
ttgaagcatc tcaagggttg aaagtatgag aagaggatcg acgacatctt gaacaagttc 720
gaccctgtcg ttgaaaagagt catcaagaag cgccgtgaga tcgtgaggag gagaagaac 780
ggagaggttg atgagggtga ggtcagcggg gttttcctt acactttgtc tgaattcgct 840
gaggatgaga ccacggagat caaaaatcacc aaggaccaca tcaagggtct tgggtgcac 900
ttttctcggtt cagggacaga ctccacagcg gtggcaacag agtgggcatt ggcagaactc 960
atcaacaatc ctaaggtgtt gaaaaaggct cgtgaggagg tctacagtgt tggggaaag 1020
gacagacttg tggacgaagt tgacactcaa aaccttcctt acattagagc aatcgtaag 1080
gagacattcc gcatgcaccc gccactccca gtggtcaaaa gaaagtgcac agaaagagtgt 1140
gagattaatg gatatgtgat cccagaggga gcattgattc tcttcaatgt atggcaagta 1200
ggaagagacc ccaaatactg ggacagacca tcggagttcc gtcctgagag gttcttagag 1260
acaggggctg aaggggaagc aaggccttctt gatcttaggg gacaacattt tcaacttctc 1320
ccatctgggtt ctggagggag aatgtgcctt ggagtcaatc tggctacttc gggatggca 1380
acacttcttg catctttat tcaagtgcctt gacttgcag tgctgggtcc acaaggacag 1440
atattgaagg gtggtgacgc caaagttagc atggaagaga gggccggcct cactgttcca 1500
agggcacata gtcttgtctg tggccactt gcaaggatcg gcgttgcatt taaactcctt 1560
tcttaa 1566

<210> 32
<211> 521
<212> PRT
<213> Trifolium pratense

<400> 32
Met Leu Leu Glu Leu Ala Leu Gly Leu Leu Val Leu Ala Leu Phe Leu
1 5 10 15

His Leu Arg Pro Thr Pro Thr Ala Lys Ser Lys Ala Leu Arg His Leu
20 25 30

Pro Asn Pro Pro Ser Pro Lys Pro Arg Leu Pro Phe Ile Gly His Leu
35 40 45

His Leu Leu Lys Asp Lys Leu Leu His Tyr Ala Leu Ile Asp Leu Ser
50 55 60

Lys Lys His Gly Pro Leu Phe Ser Leu Tyr Phe Gly Ser Met Pro Thr
65 70 75 80

Val Val Ala Ser Thr Pro Glu Leu Phe Lys Leu Phe Leu Gln Thr His
85 90 95

Glu Ala Thr Ser Phe Asn Thr Arg Phe Gln Thr Ser Ala Ile Arg Arg
100 105 110

Leu Thr Tyr Asp Ser Ser Val Ala Met Val Pro Ile Gly Pro Tyr Trp
115 120 125

Lys Phe Val Arg Lys Leu Ile Met Asn Asp Leu Leu Asn Ala Thr Thr
 130 135 140
 Val Asn Lys Leu Arg Pro Leu Arg Thr Gln Gln Ile Arg Lys Phe Leu
 145 150 155 160
 Arg Val Met Ala Gln Gly Ala Glu Ala Gln Lys Pro Leu Asp Leu Thr
 165 170 175
 Glu Glu Leu Leu Lys Trp Thr Asn Ser Thr Ile Ser Met Met Met Leu
 180 185 190
 Gly Glu Ala Glu Glu Ile Arg Asp Ile Ala Arg Glu Val Leu Lys Ile
 195 200 205
 Phe Gly Glu Tyr Ser Leu Thr Asp Phe Ile Trp Pro Leu Lys His Leu
 210 215 220
 Lys Val Gly Lys Tyr Glu Lys Arg Ile Asp Asp Ile Leu Asn Lys Phe
 225 230 235 240
 Asp Pro Val Val Glu Arg Val Ile Lys Lys Arg Arg Glu Ile Val Arg
 245 250 255
 Arg Arg Lys Asn Gly Glu Val Asp Glu Gly Glu Val Ser Gly Val Phe
 260 265 270
 Leu Asp Thr Leu Leu Glu Phe Ala Glu Asp Glu Thr Thr Glu Ile Lys
 275 280 285
 Ile Thr Lys Asp His Ile Lys Gly Leu Val Val Asp Phe Phe Ser Ala
 290 295 300
 Gly Thr Asp Ser Thr Ala Val Ala Thr Glu Trp Ala Leu Ala Glu Leu
 305 310 315 320
 Ile Asn Asn Pro Lys Val Leu Glu Lys Ala Arg Glu Glu Val Tyr Ser
 325 330 335
 Val Val Gly Lys Asp Arg Leu Val Asp Glu Val Asp Thr Gln Asn Leu
 340 345 350
 Pro Tyr Ile Arg Ala Ile Val Lys Glu Thr Phe Arg Met His Pro Pro
 355 360 365
 Leu Pro Val Val Lys Arg Lys Cys Thr Glu Glu Cys Glu Ile Asn Gly
 370 375 380
 Tyr Val Ile Pro Glu Gly Ala Leu Ile Leu Phe Asn Val Trp Gln Val
 385 390 395 400
 Gly Arg Asp Pro Lys Tyr Trp Asp Arg Pro Ser Glu Phe Arg Pro Glu
 405 410 415
 Arg Phe Leu Glu Thr Gly Ala Glu Gly Glu Ala Arg Pro Leu Asp Leu
 420 425 430
 Arg Gly Gln His Phe Gln Leu Leu Pro Phe Gly Ser Gly Arg Arg Met
 435 440 445
 Cys Pro Gly Val Asn Leu Ala Thr Ser Gly Met Ala Thr Leu Leu Ala
 450 455 460
 Ser Leu Ile Gln Cys Phe Asp Leu Gln Val Leu Gly Pro Gln Gly Gln
 465 470 475 480

Ile Leu Lys Gly Gly Asp Ala Lys Val Ser Met Glu Glu Arg Ala Gly
 485 490 495

Leu Thr Val Pro Arg Ala His Ser Leu Val Cys Val Pro Leu Ala Arg
 500 505 510

Ile Gly Val Ala Ser Lys Leu Leu Ser
 515 520

<210> 33
 <211> 1566
 <212> DNA
 <213> Trifolium pratense

<400> 33
 atgttgcgtgg aacttgcact tggtttattt gttttggctc tggttctgca cttgcgtccc 60
 acacccactg caaaatcaaa agcaattcgc catctccaa acccaccaag cccaaagcct 120
 cgtctccctc tcataggaca cttcatctc taaaagaca aacttctcca ctacgcactc 180
 atcgacactc ccaaaaaaca tggtccctt ttctctctt actttggctc catgccaacc 240
 gttgtgcct ccacaccaga attgttcaag ctcttcctcc aaacgcacga ggcaacttcc 300
 ttcaacacaaa gttccaaac ctcagccata agacgcctca cctatgatag ctcagtggcc 360
 atggttccct tcggaccta ctggaagttc gtgaggaagc tcatcatgaa cgaccttctc 420
 aacggccacca ctgtaaaacaa gttgaggcct ttgaggaccc aacagatccg caagttcctt 480
 agggttatgg cccaaaggcgc agaggcacag aagcccttg acttgaccga ggagcttctg 540
 aaatggacca acagcaccat ctccatgtat atgctcgcc aggctgagga gatcagagac 600
 atcgctcgcg aggttcttaa gatctttggc gaatacagcc tcactgactt catctggcca 660
 ttgaagcatt tcaaggttgg aaagtatgag aagaggatcg acgacatctt gaacaagttc 720
 gcccctgtcg ttgaagagt catcaagaag cgccgtgaga tcgtgaggag gagaagaac 780
 ggagaggttgc ttgagggtga ggtcagcggg gttttcctt acactttgtc tgaattcgct 840
 gagatgatggc ccacggatg caaaatcacc aaggaccaca tcaagggtct tgggtcgac 900
 ttttctcggt caggaacaga ctccacagcg gtggcaacag agtgggcatt ggcaactc 960
 atcaacaatc tcaaggtgtt gggaaagggtt cgtgaggagg tctacagtgt tggggaaag 1020
 gacagacttg tggacgaaatg tgacactcaa aaccttcctt acattagac aatcgtgaag 1080
 gagacattcc gcatgcaccc gccactccca gtggtaaaa gaaagtgcac agaagagtgt 1140
 gagattaatg gatatgtat cccagagggc gcattgattc tcttcaatgt atggcaagta 1200
 ggaagagacc ccaaatactg ggacagacca tcggagttc gtcctgagag gttccctagag 1260
 acaggggctg aaggggaagc aaggccttt gatcttaggg gacaacattt tcaacttctc 1320
 ccatttgggt ctgggaggag aatgtccct ggagtcaatc tggctacttc gggatggca 1380
 acacttcttg catctcttat tcaagtgttt gacttgcagtg tgctgggtcc acaaggacag 1440
 atattgaagg gtggtgacgc caaagttagc atgaaagaga gggccggct cactgttcca 1500
 agggcacata gtcttgcgtt tggccactt gcaaggatcg gcgttgcatt taaaactcctt 1560
 tcttaa 1566

<210> 34
 <211> 521
 <212> PRT
 <213> Trifolium pratense

<400> 34
 Met Leu Leu Glu Leu Ala Leu Gly Leu Leu Val Leu Ala Leu Phe Leu
 1 5 10 15

His Leu Arg Pro Thr Pro Thr Ala Lys Ser Lys Ala Leu Arg His Leu
 20 25 30

Pro Asn Pro Pro Ser Pro Lys Pro Arg Leu Pro Phe Ile Gly His Leu
 35 40 45

His Leu Leu Lys Asp Lys Leu Leu His Tyr Ala Leu Ile Asp Leu Ser
 50 55 60

Lys Lys His Gly Pro Leu Phe Ser Leu Tyr Phe Gly Ser Met Pro Thr
 65 70 75 80

Val Val Ala Ser Thr Pro Glu Leu Phe Lys Leu Phe Leu Gln Thr His
 85 90 95
 Glu Ala Thr Ser Phe Asn Thr Arg Phe Gln Thr Ser Ala Ile Arg Arg
 100 105 110
 Leu Thr Tyr Asp Ser Ser Val Ala Met Val Pro Phe Gly Pro Tyr Trp
 115 120 125
 Lys Phe Val Arg Lys Leu Ile Met Asn Asp Leu Leu Asn Ala Thr Thr
 130 135 140
 Val Asn Lys Leu Arg Pro Leu Arg Thr Gln Gln Ile Arg Lys Phe Leu
 145 150 155 160
 Arg Val Met Ala Gln Gly Ala Glu Ala Gln Lys Pro Leu Asp Leu Thr
 165 170 175
 Glu Glu Leu Leu Lys Trp Thr Asn Ser Thr Ile Ser Met Met Met Leu
 180 185 190
 Gly Glu Ala Glu Glu Ile Arg Asp Ile Ala Arg Glu Val Leu Lys Ile
 195 200 205
 Phe Gly Glu Tyr Ser Leu Thr Asp Phe Ile Trp Pro Leu Lys His Leu
 210 215 220
 Lys Val Gly Lys Tyr Glu Lys Arg Ile Asp Asp Ile Leu Asn Lys Phe
 225 230 235 240
 Asp Pro Val Val Glu Arg Val Ile Lys Lys Arg Arg Glu Ile Val Arg
 245 250 255
 Arg Arg Lys Asn Gly Glu Val Val Glu Gly Glu Val Ser Gly Val Phe
 260 265 270
 Leu Asp Thr Leu Leu Glu Phe Ala Glu Asp Glu Thr Thr Glu Ile Lys
 275 280 285
 Ile Thr Lys Asp His Ile Lys Gly Leu Val Val Asp Phe Phe Ser Ala
 290 295 300
 Gly Thr Asp Ser Thr Ala Val Ala Thr Glu Trp Ala Leu Ala Glu Leu
 305 310 315 320
 Ile Asn Asn Pro Lys Val Leu Glu Lys Ala Arg Glu Glu Val Tyr Ser
 325 330 335
 Val Val Gly Lys Asp Arg Leu Val Asp Glu Val Asp Thr Gln Asn Leu
 340 345 350
 Pro Tyr Ile Arg Ala Ile Val Lys Glu Thr Phe Arg Met His Pro Pro
 355 360 365
 Leu Pro Val Val Lys Arg Lys Cys Thr Glu Glu Cys Glu Ile Asn Gly
 370 375 380
 Tyr Val Ile Pro Glu Gly Ala Leu Ile Leu Phe Asn Val Trp Gln Val
 385 390 395 400
 Gly Arg Asp Pro Lys Tyr Trp Asp Arg Pro Ser Glu Phe Arg Pro Glu
 405 410 415
 Arg Phe Leu Glu Thr Gly Ala Glu Gly Glu Ala Arg Pro Leu Asp Leu
 420 425 430

Arg Gly Gln His Phe Gln Leu Leu Pro Phe Gly Ser Gly Arg Arg Met
 435 440 445

Cys Pro Gly Val Asn Leu Ala Thr Ser Gly Met Ala Thr Leu Leu Ala
 450 455 460

Ser Leu Ile Gln Cys Phe Asp Leu Gln Val Leu Gly Pro Gln Gly Gln
 465 470 475 480

Ile Leu Lys Gly Gly Asp Ala Lys Val Ser Met Glu Glu Arg Ala Gly
 485 490 495

Leu Thr Val Pro Arg Ala His Ser Leu Val Cys Val Pro Leu Ala Arg
 500 505 510

Ile Gly Val Ala Ser Lys Leu Leu Ser
 515 520

<210> 35

<211> 1563

<212> DNA

<213> Pisum sativum

<400> 35

atgttgctgg aacttgact tggttgttt gtgttagctt tgtttctgca cttgcgtccc 60
 acaccaagcg caaaatcaaa agacatccgc cacccccc aaaccctccaag cccaaagcct 120
 cgttccct tcattggcca ccttcacccctt taaaagata aacttctcca ctatgcactc 180
 atcgatctct ccaaaaagac tggccccctta ttctctctct cttccggctc catgccaacc 240
 gtcgttgcct ccacccctga gttgttcaag ctcttccctcc aagcccacga ggcaacttcc 300
 ttcagcacaa gtttccaaac ctctggcgta agacccctca cttacgacaa ctctgtggcc 360
 atggttccat tcggacccctt ctggaagttc gtgaggaagg tcatcatgaa cgacccttctc 420
 aacgccccca cccgtcaacga gctcaggccc ttgagggaccc aacagatccg caagttccctt 480
 agggttatgg cccaaagcgc agaggccccag aagcccttg acgtcacccga ggagcttctc 540
 aaatggacca acagcaccat ctccatgatg atgctccggcg aggctgagaa gatcagagac 600
 atcgctcgcg aggtccttaa gatcttcggc gaatacagcc tcactgactt catctggcct 660
 ttgaagtatc tcaagggttgg aaagtatgag aagaggattt atgacatctt gaacaagttc 720
 gaccctgtcg ttgaaagggtt catcaagaag cggccgtgaga tcgtcagaag gagaaagaac 780
 ggagaagttg ttgagggcga ggcacccggc gtcttccctcg acactttgtt tgaattcgct 840
 gaggacgaga ccatggagat caaaattacc aaggagcaaa tcaagggcct tgggtcgac 900
 ttttctctg cagggacaga ttccacagcg gtggcaacag agtgggcatt ggcagagctc 960
 atcaacaatc ccagggttggt gcaaaaggct cgtgaggagg tctacagtgt tggggcaaa 1020
 gatagactcg ttgacgaagt cgacactcaa aaccccttcc acattaggcc cattgtgaag 1080
 gagacattcc gaatgcaccc accactccca gtggtcaaaa gaaagtgcac agaagagtgt 1140
 gagattaatg ggtatgtat cccagggga gcattgggtt tttcaatgt ttggcaagta 1200
 gggaaaggacc ccaaataactg ggacagacca tcagaattcc gtcccgagag gttcttagaa 1260
 actggcgctg aaggggaagc agggccttcc gatcttaggg gccagcattt ccaactccctc 1320
 ccatttgggt ctgggaggag aatgtccctt ggtgtcaatt tggctacttc aggaatggca 1380
 acacttcttg catctcttat ccaatgcttt gacctgcaag tgctggccc tcaaggacaa 1440
 atattgaaag gtgacgtgc caaagtttgc atgaaagaga gagctggcct caccgttcca 1500
 agggcacata gtctcggtt tggccactt gcaaggatcg gcggtgcatt taaactccctt 1560
 tct 1563

<210> 36

<211> 521

<212> PRT

<213> Pisum sativum

<400> 36

Met Leu Leu Glu Leu Ala Leu Gly Leu Phe Val Leu Ala Leu Phe Leu
 1 5 10 15

His Leu Arg Pro Thr Pro Ser Ala Lys Ser Lys Ala Leu Arg His Leu
 20 25 30

Pro Asn Pro Pro Ser Pro Lys Pro Arg Leu Pro Phe Ile Gly His Leu
 35 40 45

His Leu Leu Lys Asp Lys Leu Leu His Tyr Ala Leu Ile Asp Leu Ser
 50 55 60

Lys Lys His Gly Pro Leu Phe Ser Leu Ser Phe Gly Ser Met Pro Thr
 65 70 75 80

Val Val Ala Ser Thr Pro Glu Leu Phe Lys Leu Phe Leu Gln Ala His
 85 90 95

Glu Ala Thr Ser Phe Ser Thr Arg Phe Gln Thr Ser Ala Val Arg Arg
 100 105 110

Leu Thr Tyr Asp Asn Ser Val Ala Met Val Pro Phe Gly Pro Tyr Trp
 115 120 125

Lys Phe Val Arg Lys Leu Ile Met Asn Asp Leu Leu Asn Ala Thr Thr
 130 135 140

Val Asn Glu Leu Arg Pro Leu Arg Thr Gln Gln Ile Arg Lys Phe Leu
 145 150 155 160

Arg Val Met Ala Gln Ser Ala Glu Ala Gln Lys Pro Leu Asp Val Thr
 165 170 175

Glu Glu Leu Leu Lys Trp Thr Asn Ser Thr Ile Ser Met Met Met Leu
 180 185 190

Gly Glu Ala Glu Glu Ile Arg Asp Ile Ala Arg Glu Val Leu Lys Ile
 195 200 205

Phe Gly Glu Tyr Ser Leu Thr Asp Phe Ile Trp Pro Leu Lys Tyr Leu
 210 215 220

Lys Val Gly Lys Tyr Glu Lys Arg Ile Asp Asp Ile Leu Asn Lys Phe
 225 230 235 240

Asp Pro Val Val Glu Arg Val Ile Lys Lys Arg Arg Glu Ile Val Arg
 245 250 255

Arg Arg Lys Asn Gly Glu Val Val Glu Gly Glu Ala Ser Gly Val Phe
 260 265 270

Leu Asp Thr Leu Leu Glu Phe Ala Glu Asp Glu Thr Met Glu Ile Lys
 275 280 285

Ile Thr Lys Glu Gln Ile Lys Gly Leu Val Val Asp Phe Phe Ser Ala
 290 295 300

Gly Thr Asp Ser Thr Ala Val Ala Thr Glu Trp Ala Leu Ala Glu Leu
 305 310 315 320

Ile Asn Asn Pro Arg Val Leu Gln Lys Ala Arg Glu Glu Val Tyr Ser
 325 330 335

Val Val Gly Lys Asp Arg Leu Val Asp Glu Val Asp Thr Gln Asn Leu
 340 345 350

Pro Tyr Ile Arg Ala Ile Val Lys Glu Thr Phe Arg Met His Pro Pro
 355 360 365

Leu Pro Val Val Lys Arg Lys Cys Thr Glu Glu Cys Glu Ile Asn Gly
 370 375 380

Tyr Val Ile Pro Glu Gly Ala Leu Val Leu Phe Asn Val Trp Gln Val
 385 390 395 400

Gly Lys Asp Pro Lys Tyr Trp Asp Arg Pro Ser Glu Phe Arg Pro Glu
 405 410 415

Arg Phe Leu Glu Thr Gly Ala Glu Gly Glu Ala Gly Pro Leu Asp Leu
 420 425 430

Arg Gly Gln His Phe Gln Leu Leu Pro Phe Gly Ser Gly Arg Arg Met
 435 440 445

Cys Pro Gly Val Asn Leu Ala Thr Ser Gly Met Ala Thr Leu Leu Ala
 450 455 460

Ser Leu Ile Gln Cys Phe Asp Leu Gln Val Leu Gly Pro Gln Gly Gln
 465 470 475 480

Ile Leu Lys Gly Asp Asp Ala Lys Val Ser Met Glu Glu Arg Ala Gly
 485 490 495

Leu Thr Val Pro Arg Ala His Ser Leu Val Cys Val Pro Leu Ala Arg
 500 505 510

Ile Gly Val Ala Ser Lys Leu Leu Ser
 515 520

<210> 37

<211> 1496

<212> DNA

<213> Trifolium repens

<400> 37

tctcaattgc gtccccacacc aagtgcataa tcaaaagcac ttgcacccact cccaaaccct 60
 ccaagcccaa ggccctcgct tccttcatt ggccacccctc acctcttaaa agataaactt 120
 ctccactatg caccatcga tctctccaaa aagcatggcc cttatttc tcttccttc 180
 ggctccatgc caaccgtcgt tgccctccacc cctgagttgt tcaagctctt cttccaaacc 240
 cacgaggcaa cttcctcaa cacaagggttc caaacctctg ccataagaca cttcacttac 300
 gacaactctg tggccatggc tccattcgga cttacttggc agttcgtgag gaagctcatc 360
 atgaacgacc ttctcaacgc caccacccgtc aacaagctca ggccctttgag gacccaacag 420
 atccgcaagt tccttagggt tatggcccaa agcgcagagg cccagaagcc ctttgacgtc 480
 accgaggagc ttctcaatg gaccaacagg accatctcca tggatgtgt cggcgaggct 540
 gaggagatca gagacatcgc tcgcgaggtt cttaaatct tcggcgaata cagcctca 600
 gacttcatct ggcccttgaa gtacctcaag gttggaaagt atgagaagag gattgtatgac 660
 atcttgaaca agttcgaccc tgcgttggaa agggtcatca agaagcgccg tgagatcgtc 720
 agaaggagaa agaacggaga agttgttggag ggcgaggcc gccggcgtctt cctcgacact 780
 ttgttgaat tcgctgagga cgagaccatg gagatcaaaa ttaccaagga gcaaatcaag 840
 ggcccttggc tcgactttt ctgcgcaggc acatgttca cagcgggtgtt aacagagtgg 900
 gcattggcag agctcatcaa caatcccagg gtgttgcataa aggctcgatc ggaggtctac 960
 agtgttggc gcaaagatag actcggtgac gaagttgaca ctcaaaacat tccttacatt 1020
 agggccattt tgaaggagac attccgaatg caccacccac tcccagtggt caaaagaaa 1080
 tgcacagaag agtgtgagat taatgggtat gtgatcccag agggagcatt gtttttttc 1140
 aatgtttggc aagtaggaag ggaccccaaa tactgggaca gaccatcaga atccgtccc 1200
 gagaggttct tagaaactgg tgcgttgggaa gacgcaggcc ctcttgcatt tagggggcc 1260
 catttccaaac tcctcccaatt tgggtctggg aggaaatgt gcccgtgtt cagtttggct 1320
 acttcaggaa tggcaacact tcttgcattt cttatccaat gtttgaccc gcaagtgtt 1380
 ggccttcacag gacaaatatt gaaagggtgtt gatgcataaag ttagcatgga agagagagct 1440
 ggccttcacag ttccaaaggcc acatgttcc gtttgcgtt cacttgcaag gatcgg 1496

<210> 38

<211> 498

<212> PRT

<213> Trifolium repens

<400> 38

Ser His Leu Arg Pro Thr Pro Ser Ala Ile Ser Lys Ala Leu Arg His
 1 5 10 15

Leu Pro Asn Pro Pro Ser Pro Arg Pro Arg Leu Pro Phe Ile Gly His
 20 25 30

Leu His Leu Leu Lys Asp Lys Leu Leu His Tyr Ala Pro Ile Asp Leu
 35 40 45

Ser Lys Lys His Gly Pro Leu Phe Ser Leu Ser Phe Gly Ser Met Pro
 50 55 60

Thr Val Val Ala Ser Thr Pro Glu Leu Phe Lys Leu Phe Leu Gln Thr
 65 70 75 80

His Glu Ala Thr Ser Phe Asn Thr Arg Phe Gln Thr Ser Ala Ile Arg
 85 90 95

His Leu Thr Tyr Asp Asn Ser Val Ala Met Val Pro Phe Gly Pro Tyr
 100 105 110

Trp Lys Phe Val Arg Lys Leu Ile Met Asn Asp Leu Leu Asn Ala Thr
 115 120 125

Thr Val Asn Lys Leu Arg Pro Leu Arg Thr Gln Gln Ile Arg Lys Phe
 130 135 140

Leu Arg Val Met Ala Gln Ser Ala Glu Ala Gln Lys Pro Leu Asp Val
 145 150 155 160

Thr Glu Glu Leu Leu Lys Trp Thr Asn Ser Thr Ile Ser Met Met Met
 165 170 175

Leu Gly Glu Ala Glu Glu Ile Arg Asp Ile Ala Arg Glu Val Leu Lys
 180 185 190

Ile Phe Gly Glu Tyr Ser Leu Thr Asp Phe Ile Trp Pro Leu Lys Tyr
 195 200 205

Leu Lys Val Gly Lys Tyr Glu Lys Arg Ile Asp Asp Ile Leu Asn Lys
 210 215 220

Phe Asp Pro Val Val Glu Arg Val Ile Lys Lys Arg Arg Glu Ile Val
 225 230 235 240

Arg Arg Arg Lys Asn Gly Glu Val Val Glu Gly Glu Ala Ser Gly Val
 245 250 255

Phe Leu Asp Thr Leu Leu Glu Phe Ala Glu Asp Glu Thr Met Glu Ile
 260 265 270

Lys Ile Thr Lys Glu Gln Ile Lys Gly Leu Val Val Asp Phe Phe Ser
 275 280 285

Ala Gly Thr Asp Ser Thr Ala Val Val Thr Glu Trp Ala Leu Ala Glu
 290 295 300

Leu Ile Asn Asn Pro Arg Val Leu Gln Lys Ala Arg Glu Glu Val Tyr
 305 310 315 320

Ser Val Val Gly Lys Asp Arg Leu Val Asp Glu Val Asp Thr Gln Asn
 325 330 335

Leu Pro Tyr Ile Arg Ala Ile Val Lys Glu Thr Phe Arg Met His Pro
 340 345 350

Pro Leu Pro Val Val Lys Arg Lys Cys Thr Glu Glu Cys Glu Ile Asn
 355 360 365

Gly Tyr Val Ile Pro Glu Gly Ala Leu Val Leu Phe Asn Val Trp Gln
 370 375 380
 Val Gly Arg Asp Pro Lys Tyr Trp Asp Arg Pro Ser Glu Ser Arg Pro
 385 390 395 400
 Glu Arg Phe Leu Glu Thr Gly Ala Glu Gly Glu Ala Gly Pro Leu Asp
 405 410 415
 Leu Arg Gly Gln His Phe Gln Leu Leu Pro Phe Gly Ser Gly Arg Arg
 420 425 430
 Met Cys Pro Gly Val Ser Leu Ala Thr Ser Gly Met Ala Thr Leu Leu
 435 440 445
 Ala Ser Leu Ile Gln Cys Phe Asp Leu Gln Val Leu Gly Pro Gln Gly
 450 455 460
 Gln Ile Leu Lys Gly Asp Asp Ala Lys Val Ser Met Glu Glu Arg Ala
 465 470 475 480
 Gly Leu Thr Val Pro Arg Ala His Ser Leu Val Cys Val Pro Leu Ala
 485 490 495
 Arg Ile

<210> 39
 <211> 1501
 <212> DNA
 <213> Trifolium repens

<400> 39
 tgtttctgca cttgcgtccc acacccactg caaaatcaaa agcaacttcgc catctcccaa 60
 acccaccaag cccaaaggct cgtcttccct tcataaggaca cttcatctc taaaagaca 120
 aacttctcca ctacgcactc atcgacctt ccaaaaaaca tggccctta ttctctct 180
 actttggctc catgccaacc gttgttgcc ttcaacacaa ggttccaaac cttagccata agacgcctca 240
 aaacgcacga ggcacactcc ttcaacacaa ggttccaaac cttagccata agacgcctca 300
 cctacgacaa ctctgtggcc atggttccat tcggacctt ctggaaaggcc ttgaggagcc 360
 tcatcatgaa cgaccttctc aacgcccacca ccgtcaacaa gtcaggcc ttgaggagcc 420
 aacagatccg caagttctt agggttatgg cccaaagcgc agaggcccag aagcccttg 480
 acgtcaccga ggagctctc aaatggacca acagcaccat ctccatgtat atgctcgcc 540
 aggctgagac gatcagagac atcgctcgcc aggttctt aa gatcttcggc gaatacagcc 600
 tcactgactt catctggct ttgaagtatc tcaagggttgg aaagtatgag aagaggattt 660
 atgacatctt gaacaagttc gaccctgtcg ttgaaaaggat catcaagaag cgccgtgaga 720
 tcgtcagaag gagaaagaac ggagaagttt ttgagggcga ggccagcggc gtcttcctcg 780
 acactttgtc tgaattcgct gaggacgaga ccatggagat caaaatttacc aaggagcaaa 840
 tcaaggccct tgggtcgac tttttctctg cagggacaga ttccacagcg gtggcaacag 900
 agtgggcatt ggcagagctc atcaacaatc ccaaggtgtt gcaaaaggct cgtgaggagg 960
 cctacagtgt tggggcaaa gataactcg ttgaccaact tgacactcaa aaccttcctt 1020
 acattagggc cattgtgaag gagacattcc gaatgcaccc accactccca gtggtcaaaa 1080
 gaaagtgcac agaagagtgt gggattatg ggtatgtat cccagagggc gcattggcc 1140
 tttcaatgt ttggcaagta ggaaggggacc ccaaatactg ggacagacca tcagaattcc 1200
 gtcccgagag gttcttagaa actggtgctg aaggggaagc agggcctt gatcttaggg 1260
 gccagcattt ccaacttc ccatgggtt ctgggaggag aatgtccctt ggtgtcaattt 1320
 tggctacttc aggaatggca acacttctt gatctctt ccaatgtttt gacctgcaag 1380
 tgctggccccc tcaaggacaa atattgaaag gtgatgtgc caaagtttgc atgaaagaga 1440
 gagctggccctt cacaacttccca agggcacata gtctcggtt gttccactt gcaaggatcg 1500
 g

<210> 40
 <211> 499
 <212> PRT
 <213> Trifolium repens

<400> 40
 Phe Leu His Leu Arg Pro Thr Pro Thr Ala Lys Ser Lys Ala Leu Arg
 1 5 10 15

His Leu Pro Asn Pro Pro Ser Pro Lys Pro Arg Leu Pro Phe Ile Gly
 20 25 30

His Leu His Leu Leu Lys Asp Lys Leu Leu His Tyr Ala Leu Ile Asp
 35 40 45

Leu Ser Lys Lys His Gly Pro Leu Phe Ser Leu Tyr Phe Gly Ser Met
 50 55 60

Pro Thr Val Val Ala Ser Thr Pro Glu Leu Phe Lys Leu Phe Leu Gln
 65 70 75 80

Thr His Glu Ala Thr Ser Phe Asn Thr Arg Phe Gln Thr Ser Ala Ile
 85 90 95

Arg Arg Leu Thr Tyr Asp Asn Ser Val Ala Met Val Pro Phe Gly Pro
 100 105 110

Tyr Trp Lys Phe Val Arg Lys Leu Ile Met Asn Asp Leu Leu Asn Ala
 115 120 125

Thr Thr Val Asn Lys Leu Arg Pro Leu Arg Thr Gln Gln Ile Arg Lys
 130 135 140

Phe Leu Arg Val Met Ala Gln Ser Ala Glu Ala Gln Lys Pro Leu Asp
 145 150 155 160

Val Thr Glu Glu Leu Leu Lys Trp Thr Asn Ser Thr Ile Ser Met Met
 165 170 175

Met Leu Gly Glu Ala Glu Glu Ile Arg Asp Ile Ala Arg Glu Val Leu
 180 185 190

Lys Ile Phe Gly Glu Tyr Ser Leu Thr Asp Phe Ile Trp Pro Leu Lys
 195 200 205

Tyr Leu Lys Val Gly Lys Tyr Glu Lys Arg Ile Asp Asp Ile Leu Asn
 210 215 220

Lys Phe Asp Pro Val Val Glu Arg Val Ile Lys Lys Arg Arg Glu Ile
 225 230 235 240

Val Arg Arg Arg Lys Asn Gly Glu Val Val Glu Gly Glu Ala Ser Gly
 245 250 255

Val Phe Leu Asp Thr Leu Leu Glu Phe Ala Glu Asp Glu Thr Met Glu
 260 265 270

Ile Lys Ile Thr Lys Glu Gln Ile Lys Gly Leu Val Val Asp Phe Phe
 275 280 285

Ser Ala Gly Thr Asp Ser Thr Ala Val Ala Thr Glu Trp Ala Leu Ala
 290 295 300

Glu Leu Ile Asn Asn Pro Lys Val Leu Gln Lys Ala Arg Glu Glu Ala
 305 310 315 320

Tyr Ser Val Val Gly Lys Asp Arg Leu Val Asp Glu Val Asp Thr Gln
 325 330 335

Asn Leu Pro Tyr Ile Arg Ala Ile Val Lys Glu Thr Phe Arg Met His
 340 345 350

Pro Pro Leu Pro Val Val Lys Arg Lys Cys Thr Glu Glu Cys Gly Ile
 355 360 365

Asn Gly Tyr Val Ile Pro Glu Gly Ala Leu Val Leu Phe Asn Val Trp
 370 375 380

Gln Val Gly Arg Asp Pro Lys Tyr Trp Asp Arg Pro Ser Glu Phe Arg
 385 390 395 400

Pro Glu Arg Phe Leu Glu Thr Gly Ala Glu Gly Glu Ala Gly Pro Leu
 405 410 415

Asp Leu Arg Gly Gln His Phe Gln Leu Leu Pro Phe Gly Ser Gly Arg
 420 425 430

Arg Met Cys Pro Gly Val Asn Leu Ala Thr Ser Gly Met Ala Thr Leu
 435 440 445

Leu Ala Ser Leu Ile Gln Cys Phe Asp Leu Gln Val Leu Gly Pro Gln
 450 455 460

Gly Gln Ile Leu Lys Gly Asp Asp Ala Lys Val Ser Met Glu Glu Arg
 465 470 475 480

Ala Gly Leu Thr Val Pro Arg Ala His Ser Leu Val Cys Val Pro Leu
 485 490 495

Ala Arg Ile

<210> 41
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:PCR primer

<400> 41
ttgctggAAC ttgcacttgg t

21

<210> 42
<211> 32
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:PCR primer

<400> 42
gtatatgtatg ggtacccattaa ttaagaaagg ag

32

<210> 43
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:PCR primer

<400> 43
gacgcctcac ttacgacaac tctgtg

26

<210> 44
<211> 25

<212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence:PCR primer

 <400> 44
 cctctcgaaa cgaaattctg atggt 25

 <210> 45
 <211> 25
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence:PCR primer

 <400> 45
 gcggtgacg ggcggactct tcttc 25

 <210> 46
 <211> 25
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence:PCR primer

 <400> 46
 cgcggcaatac gcaaaccggcc tctcc 25

 <210> 47
 <211> 1501
 <212> DNA
 <213> Beta vulgaris

 <400> 47
 tgggttcgtcc acacccactg caaaatcaaa agcacttcgc catctccaa 60
 acccacaag cccaaagcct cgtctccct tcataaggaca ccttcatctc taaaagaca 120
 aacttctcca ctacgcaactc atcgacctct ccaaaaaaca tggtccctta ttctctctct 180
 actttggctc catgccaacc gttgttgct ccacaccaga attgttcaag ctcttcctcc 240
 aaacgcacga ggcaacttcc ttcacacacaa ggttccaaac ctcagccata agacgcctca 300
 cctatgatag ctcagtggcc atggttccct tcggacccctt ctggaagttc gtgaggaagc 360
 tcatacatgaa cgaccccttc aacgcccacca ctgttaaaca gttgaggccct ttgaggaccc 420
 aacagatccg caagttccct agggttatgg cccaaaggcgc agaggcacag aagcccttg 480
 acttgaccga ggagttctg aaatggacca acagccatcatccatgtat atgtcggcg 540
 aggctgagga gatcagagac atcgctcgcg aggttcttta gatctttggc gaatacagcc 600
 tcactgactt catctggcca ttgaagcattc tcaagggttgg aaagtatgatg aagaggatcg 660
 acgacatctt gaacaagttc gaccctgtcg ttgaaagagt catcaagaag cgccgtgaga 720
 tcgtgaggag gagaaagaac ggagaggatg ttgagggtga ggtcagccgg gtttccttg 780
 acactttgtc tgaattcgct gaggatgaga ccatggagat caaaatcacc aaggaccaca 840
 tcaagggtct tgggttcgtac tttttctcgg caggaacaga ctccacagcg gtggcaacag 900
 agtgggcatt ggcagaactc atcaacaatc ctaaggtgtt gggaaaggct cgtgaggagg 960
 tctacagtgt tggggaaag gacagacttg tggacgaaatg agacactcaa aacccctt 1020
 acatttagagc aatcgtaag gagacattcc gcatgcaccc gcccactccca gtggtcaaaa 1080
 gaaagtgcatt agaagagtgt gagattaatg gatatgtatg cccagaggga gcattgattc 1140
 tcttcattgt atggcaagta ggaagagacc ctaaaatctg ggacagacca tcggagttcc 1200
 gtccctgagag gttccttagag acaggggctg aaggggaaac aaggcttctt gatcttaggg 1260
 gacaacattt tcaacttctc ccattttgggt ctgggaggag aatgtccctt ggagtcaatc 1320
 tggctacttc gggaaatggca acacttctt cattcttat tcagtgcattt gacttgcaag 1380
 tgctgggtcc acaaggacag atattgaagg gtggtgacgc caaagtttagc atggaaagaga 1440
 gagccggcct cactgttcca agggcacata gtcttgcctg tggccactt gcaaggatcg 1500
 g 1501

<210> 48
 <211> 499

<212> PRT
 <213> Beta vulgaris

<400> 48
 Phe Leu His Leu Arg Pro Thr Pro Thr Ala Lys Ser Lys Ala Leu Arg
 1 5 10 15
 His Leu Pro Asn Pro Pro Ser Pro Lys Pro Arg Leu Pro Phe Ile Gly
 20 25 30
 His Leu His Leu Leu Lys Asp Lys Leu Leu His Tyr Ala Leu Ile Asp
 35 40 45
 Leu Ser Lys Lys His Gly Pro Leu Phe Ser Leu Tyr Phe Gly Ser Met
 50 55 60
 Pro Thr Val Val Ala Ser Thr Pro Glu Leu Phe Lys Leu Phe Leu Gln
 65 70 75 80
 Thr His Glu Ala Thr Ser Phe Asn Thr Arg Phe Gln Thr Ser Ala Ile
 85 90 95
 Arg Arg Leu Thr Tyr Asp Ser Ser Val Ala Met Val Pro Phe Gly Pro
 100 105 110
 Tyr Trp Lys Phe Val Arg Lys Leu Ile Met Asn Asp Leu Leu Asn Ala
 115 120 125
 Thr Thr Val Asn Lys Leu Arg Pro Leu Arg Thr Gln Gln Ile Arg Lys
 130 135 140
 Phe Leu Arg Val Met Ala Gln Gly Ala Glu Ala Gln Lys Pro Leu Asp
 145 150 155 160
 Leu Thr Glu Glu Leu Leu Lys Trp Thr Asn Ser Thr Ile Ser Met Met
 165 170 175
 Met Leu Gly Glu Ala Glu Ile Arg Asp Ile Ala Arg Glu Val Leu
 180 185 190
 Lys Ile Phe Gly Glu Tyr Ser Leu Thr Asp Phe Ile Trp Pro Leu Lys
 195 200 205
 His Leu Lys Val Gly Lys Tyr Glu Lys Arg Ile Asp Asp Ile Leu Asn
 210 215 220
 Lys Phe Asp Pro Val Val Glu Arg Val Ile Lys Lys Arg Arg Glu Ile
 225 230 235 240
 Val Arg Arg Arg Lys Asn Gly Glu Asp Val Glu Gly Glu Val Ser Gly
 245 250 255
 Val Phe Leu Asp Thr Leu Leu Glu Phe Ala Glu Asp Glu Thr Met Glu
 260 265 270
 Ile Lys Ile Thr Lys Asp His Ile Lys Gly Leu Val Val Asp Phe Phe
 275 280 285
 Ser Ala Gly Thr Asp Ser Thr Ala Val Ala Thr Glu Trp Ala Leu Ala
 290 295 300
 Glu Leu Ile Asn Asn Pro Lys Val Leu Glu Lys Ala Arg Glu Glu Val
 305 310 315 320
 Tyr Ser Val Val Gly Lys Asp Arg Leu Val Asp Glu Val Asp Thr Gln
 325 330 335

Asn Leu Pro Tyr Ile Arg Ala Ile Val Lys Glu Thr Phe Arg Met His
 340 345 350

Pro Pro Leu Pro Val Val Lys Arg Lys Cys Ile Glu Glu Cys Glu Ile
 355 360 365

Asn Gly Tyr Val Ile Pro Glu Gly Ala Leu Ile Leu Phe Asn Val Trp
 370 375 380

Gln Val Gly Arg Asp Pro Lys Tyr Trp Asp Arg Pro Ser Glu Phe Arg
 385 390 395 400

Pro Glu Arg Phe Leu Glu Thr Gly Ala Glu Gly Glu Ala Arg Leu Leu
 405 410 415

Asp Leu Arg Gly Gln His Phe Gln Leu Leu Pro Phe Gly Ser Gly Arg
 420 425 430

Arg Met Cys Pro Gly Val Asn Leu Ala Thr Ser Gly Met Ala Thr Leu
 435 440 445

Leu Ala Ser Leu Ile Gln Cys Phe Asp Leu Gln Val Leu Gly Pro Gln
 450 455 460

Gly Gln Ile Leu Lys Gly Gly Asp Ala Lys Val Ser Met Glu Glu Arg
 465 470 475 480

Ala Gly Leu Thr Val Pro Arg Ala His Ser Leu Val Cys Val Pro Leu
 485 490 495

Ala Arg Ile

<210> 49

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:PCR primer

<400> 49

gaattcgcgg ccgctctaga actagtggat

30

<210> 50

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:PCR primer

<400> 50

gaattcgcgg ccgcgaattt ggtaccgggc

30

<210> 51

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:PCR primer

<400> 51

gcaaacgaag acaaatggga gatgata

27

<210> 52
 <211> 1801
 <212> DNA
 <213> Glycine max

<220>
 <221> intron
 <222> (895)...(1112)

<400> 52

ttgctggAAC	ttgcacttgg	tttgtttgtg	ttagctttgt	ttctgcactt	gcgtcccaca	60
ccaaagtgcAA	aatcaaaaAGC	acttcgcccAC	ctcccaaacc	ctccaaggccc	aaaggcctcgT	120
cttcccttCA	ttggccacCT	tcaccccttTA	aaagataaaAC	ttctccactA	tgactctatC	180
gatctctCCA	aaaagcatGG	ccccttattC	tctctctcCT	tcggctccat	gccaaccgtc	240
gttgcctCCA	cccctgagTT	gttcaagctC	ttccctccAA	cccacgaggC	aacttcctTC	300
aacacaaggT	tccaaacACT	tgccataAGA	cgccctactT	acgacaactC	tgtggccatG	360
gttccattCG	gacctactG	gaagttcgtG	aggaagctCA	tcatgaacGA	ccttctcaAC	420
gcccaccAC	tcaacaaggT	caggccttTG	aggacccaAC	agatccgcaa	gttccttagG	480
gttatggccc	aaagcgcAGA	gccccagaAG	cccccttGAC	tcaccgagGA	gtttctcaAA	540
tggaccaACA	gcaccatCTC	catgatgatG	ctcggcgagg	ctgaggagat	cagagacatC	600
gctcgcgagg	ttcttaagAT	cttcggcgAA	tacagcctCA	ctgacttcat	ctggccttTG	660
aagtatCTC	aggttggAAA	gtatgagaAG	aggattgtAT	acatcttGAA	caagttcgAC	720
cctgtcgTT	aaagggtCAT	caagaagCGC	cgtgagatCG	tcagaaggAG	aaagaacGGA	780
gaagttgttG	agggcgaggC	cagcggcgtC	ttcctcgaca	ctttgcttGA	attcgctgAG	840
gacgagacCA	tggagatCAA	aattaccaAG	gagcaaATCA	agggccttGT	tgtcgtaAGT	900
ttccttCTC	tctcctactT	tattacttTC	tttcattcat	catatgtATT	ggcattaaAT	960
agtatactAT	atgagaaaAT	atgttacgCA	ctcacggTGT	aaagatatGT	ggtgttttTT	1020
taaaaagAGA	tacagaaggTT	gttTTtatGC	atgtatgtTA	acgtatattT	actcaagtGG	1080
aaactaattA	attctcaattT	ttgggtatGT	aggacttttT	ctctgcaggG	acagattCCA	1140
cagcgggtGG	aacagagtGG	gcattggcAG	agctcatCAA	caatcccAGG	gtgttgcaaA	1200
aggctcgtGA	ggaggtctAC	agtgttGTTG	gcaaaagatAG	actcggttGAC	gaagttgaca	1260
ctccaaaacCT	tccttacattT	agggccatG	tgaaggagAC	atccgaatG	caccacccAC	1320
tccctaggT	caaaaagAAAG	tgcacagaAG	agtgtgagat	taatgggtAT	gtgatcccAG	1380
agggagcATT	ggttctttC	aatgtttGTC	aagttagGAAG	ggaccccaAA	tactgggaca	1440
gaccatcAGA	attccgtccc	gagaggttCT	tagaaaactGG	tgctgaagGG	gaagcaggGC	1500
ctcttgcAT	tagggccAG	catttccAAAC	tcctccatt	tgggtcttGG	aggagaatGT	1560
gccctgggtGT	caatttggCT	acttcaggAA	tggcaacACT	tcttgcacT	cttatccAA	1620
gctttgacCT	gcaagtgtG	ggccctcaAG	gacaaaatATT	gaaaggttGAT	gatgccaaAG	1680
ttagcatGGA	agagagagCT	ggcctcacAG	ttccaaaggGC	acatagtCTC	gtttgtttTC	1740
cacttgcaAG	gatcgccgtT	gcatctaaAC	tccttcttA	attaaggat	ccatcatata	1800
C						1801
aattagcctC	acaaaagcaa	agatcaaaca	aaccaaggAC	gagaacacGA	tgttgcttGA	60
acttgcactT	ggtttattGG	ttttggctCT	gtttctgcAC	ttgcgtccCA	cacccactGC	120
aaaatcaaaa	gcacttcgCC	atctccaaa	cccaccaAGC	ccaaaggcCTC	gtcttccCTT	180
cataggacAC	cttcataCTC	taaaagacAA	acttctccAC	tacgcactCA	tcgacccTCTC	240
aaaaaaacAT	ggtcccttat	tctctctCTA	ctttggctCC	atgccaacCG	ttgttgccTC	300
cacaccAGAA	ttgttcaAGC	tcttcctCCA	aacgcacGA	gcaacttCC	tcaacacAAAG	360
gttccaaACC	tcagccataA	gacgcctCAC	ctatgatAGC	tcagtggCCA	tgggtccCTT	420
cggaccttAC	tggaaagtTC	tgaggaAGCT	catcatGAAC	gacttccCA	acgcccACAC	480
tgtaaacaAG	ttgaggcCTT	tgaggaccA	acagacCCG	aagttccTTA	gggttatGGC	540
ccaaaggcGA	gaggcacAGA	agccccttGA	cttgaccGA	gagcttCTGA	aatggaccaa	600
cagcaccatC	tccatgatGA	tgctcggcGA	ggctgaggAG	atcagagaca	tcgctcgCGA	660
ggttcttaAG	atcttggCG	aatacagCT	caactgactC	atctggccAT	tgaagcatCT	720
caaggttGGA	aagtatgAGA	agaggatCGA	cgacatCTG	aacaagttCG	accctgtcGT	780

tgaaagggtc atcaagaagc gccgtgagat cgtgaggagg agaaagaacg gagagggtgt 840
 tgagggtgag gtcagcgggg tttcccttga cacttgctt gaattcgcgt aggatgagac 900
 catggagatc aaaatcacca aggaccatcg cgagggctt gttgtcgta gttccctgtc 960
 tcattcattt atcgaaatat gcaatgtt gttacaaga gatcgagaat tgacatttat 1020
 atattcatgt ggtggcaatt attaacgtt acgcattttt aatcgatatt gtgtatgtgc 1080
 aggactttt ctcggcagga acagactcca cagcgggtgc aacagatgg gcattggcag 1140
 aactcatcaa caatcctaag gtgttggaaa aggctcgta ggaggtctac agtgttgtgg 1200
 gaaaggacag acttgtggac gaagttgaca ctc当地 ctttacatt agagcaatcg 1260
 tgaaggagac attccgcattt caccggccac tcccaactt gaaaagaaag tgcacagaag 1320
 agtgtgagat taatggatatt gtgatcccag agggaggcatt gattcttcc aatgtatggc 1380
 aagtaggaag agaccctaaa tactgggaca gaccatcgga gttccgtcct gagaggttcc 1440
 tagagacagg ggctgaaggg gaagcaggc ctctgtatct taggggacaa catttcaac 1500
 ttctccattt tgggtctggg aggagaatgt gcccggagt caatctgct acttcggaa 1560
 tggcaacactt ctgtcatctt ctattcgt gcttcgactt gcaagtgtc ggtccacaag 1620
 gacagatattt gaagggtgtt gacggccaaat tttagcatggaa agagagagcc ggcttcactg 1680
 ttccaagggc acatagtctt gtctgtgtc cactgcaag gatcggcggtt gcatctaaac 1740
 tcccttcttta attaagatca tgcgtcatcat catcatatata aatatttact tttgtgtgt 1800
 tgataatcatt catttcaata aggttcgtt catctactttt ttatgaagta tataaggccct 1860
 tccatgcaca ttgtatcatc tcccatattt gttcggttgc 1900

<210> 54
 <211> 1501
 <212> DNA
 <213> Lupinus albus

<400> 54
 tggttctgca cttgcgtccc acaccactg caaaatcaa agcacttcgc catctccaa 60
 acccacaag cccaaagcct cgtctccct tcataaggaca ccttcatctc taaaagaca 120
 aacttctcca ctacgcaactc atcgaccctt ccaaaaaaca tggtccctta ttctctctct 180
 actttggctc catgccaacc gttgtgcctt ccacaccaga attgttcaag ctcttcctcc 240
 aaacgcacga ggcaacttcc ttcaacacaaa gtttccaaac ctcagccata agacgcctca 300
 cctatgatag ctcagtgcc agggttccct tcggaccctt ctggaaatcc gtgaggaagc 360
 tcatcatgaa cgaccttctt aacggccacca ctgtaaaacaa gttgaggcctt tgaggagacc 420
 aacagatccg caagttcctt agggttatgg cccaaaggcgc agaggcacag aagcccttg 480
 acttgaccga ggagcttctg aaatggacca acagaccat ctccatgatg atgctcggcg 540
 aggctgagga gatcagagac atcgctcgcc aggttcttaa gatctttgc gaatacagcc 600
 tcaactgactt catctggcca ttgaagcatc tcaagggttg aaagtatgag aagaggatcg 660
 acgacatctt gaacaagttc gaccctgtcg ttgaaagagt catcaagaag cgccgtgaga 720
 tcgtgaggag gagaagaagac ggagaggtt gttgagggtga ggtcagcggg gtttccttg 780
 acactttgtct tgaattcgct gaggatgaga ccatggagat caaaatcacc aagaccaca 840
 tcaagggtct tgggtgcac ttttctcgg caggaacaga ctccacagcg gtggcaacag 900
 agtggcattt ggcagaactc atcaacaatc ctaagggtttt gggaaaggcgt cgtgaggagg 960
 tctacagtgt tggggaaag gacagacttg tggacgaaatg tgacactcaa aaccttcctt 1020
 acatttagagc aatcgtaag gagacatttc gcatgcaccc gcccactcca gtggtaaaa 1080
 gaaagtgcac agaagagtgt gagattaatg gatatgtat cccagaggg gcatgttcc 1140
 tcttcaatgt atggcaagta ggaagagacc ccaaatactg ggacagacca tggagttcc 1200
 gtccctgagag gttccttagag acagaggctt aagggaagc aaggcctt gatcttaggg 1260
 gacaacattt tcaacttctc ccatttgggtt ctggaggag aatgtccctt ggagtcatc 1320
 tggctacttc gggaatggca acacttctt catctttat tcaatgtttt gacttgcag 1380
 tgctgggtcc acaaggacag atattgaagg gtggtgacgc caaagttac atgaaagaga 1440
 gagccggcctt cactgttcca agggcacata gtctgtctg tggccactt gcaaggatcg 1500
 g

<210> 55
 <211> 499
 <212> PRT
 <213> Lupinus albus

<400> 49
 Phe Leu His Leu Arg Pro Thr Pro Thr Ala Lys Ser Lys Ala Leu Arg
 1 5 10 15

His Leu Pro Asn Pro Pro Ser Pro Lys Pro Arg Leu Pro Phe Ile Gly
 20 25 30

His Leu His Leu Leu Lys Asp Lys Leu Leu His Tyr Ala Leu Ile Asp
 35 40 45

Leu Ser Lys Lys His Gly Pro Leu Phe Ser Leu Tyr Phe Gly Ser Met
 50 55 60

Pro Thr Val Val Ala Ser Thr Pro Glu Leu Phe Lys Leu Phe Leu Gln
 65 70 75 80

Thr His Glu Ala Thr Ser Phe Asn Thr Arg Phe Gln Thr Ser Ala Ile
 85 90 95

Arg Arg Leu Thr Tyr Asp Ser Ser Val Ala Arg Val Pro Phe Gly Pro
 100 105 110

Tyr Trp Lys Phe Val Arg Lys Leu Ile Met Asn Asp Leu Leu Asn Ala
 115 120 125

Thr Thr Val Asn Lys Leu Arg Pro Leu Arg Thr Gln Gln Ile Arg Lys
 130 135 140

Phe Leu Arg Val Met Ala Gln Gly Ala Glu Ala Gln Lys Pro Leu Asp
 145 150 155 160

Leu Thr Glu Glu Leu Leu Lys Trp Thr Asn Ser Thr Ile Ser Met Met
 165 170 175

Met Leu Gly Glu Ala Glu Glu Ile Arg Asp Ile Ala Arg Glu Val Leu
 180 185 190

Lys Ile Phe Gly Glu Tyr Ser Leu Thr Asp Phe Ile Trp Pro Leu Lys
 195 200 205

His Leu Lys Val Gly Lys Tyr Glu Lys Arg Ile Asp Asp Ile Leu Asn
 210 215 220

Lys Phe Asp Pro Val Val Glu Arg Val Ile Lys Lys Arg Arg Glu Ile
 225 230 235 240

Val Arg Arg Arg Lys Asn Gly Glu Val Val Glu Gly Glu Val Ser Gly
 245 250 255

Val Leu Leu Asp Thr Leu Leu Glu Phe Ala Glu Asp Glu Thr Met Glu
 260 265 270

Ile Lys Ile Thr Lys Asp His Ile Lys Gly Leu Val Val Asp Phe Phe
 275 280 285

Ser Ala Gly Thr Asp Ser Thr Ala Val Ala Thr Glu Trp Ala Leu Ala
 290 295 300

Glu Leu Ile Asn Asn Pro Lys Val Leu Glu Arg Ala Arg Glu Glu Val
 305 310 315 320

Tyr Ser Val Val Gly Lys Asp Arg Leu Val Asp Glu Val Asp Thr Gln
 325 330 335

Asn Leu Pro Tyr Ile Arg Ala Ile Val Lys Glu Thr Phe Arg Met His
 340 345 350

Pro Pro Leu Pro Val Val Lys Arg Lys Cys Thr Glu Glu Cys Glu Ile
 355 360 365

Asn Gly Tyr Val Ile Pro Glu Gly Ala Leu Ile Leu Phe Asn Val Trp
 370 375 380

Gln Val Gly Arg Asp Pro Lys Tyr Trp Asp Arg Pro Ser Glu Phe Arg
 385 390 395 400

Pro Glu Arg Phe Leu Glu Thr Glu Ala Glu Gly Glu Ala Arg Pro Leu
 405 410 415

Asp Leu Arg Gly Gln His Phe Gln Leu Leu Pro Phe Gly Ser Gly Arg
 420 425 430

Arg Met Cys Pro Gly Val Ile Leu Ala Thr Ser Gly Met Ala Thr Leu
 435 440 445

Leu Ala Ser Leu Ile Gln Cys Phe Asp Leu Gln Val Leu Gly Pro Gln
 450 455 460

Gly Gln Ile Leu Lys Gly Gly Asp Ala Lys Val Ser Met Glu Glu Arg
 465 470 475 480

Ala Gly Leu Thr Val Pro Arg Ala His Ser Leu Val Cys Val Pro Leu
 485 490 495

Ala Arg Ile

<210> 56

<211> 1501

<212> DNA

<213> *Medicago sativa*

<400> 56

tgttctgca cttgcgtccc acacccactg caaaaatcaaa agcacttcgc catctcccaa 60
 acccacaag cccaaaggcct cgtctccct tcataaggaca ccttcatctc ttaaaagaca 120
 aacttctcca ctacgcaactc atcgacctc ccaaaaaaca tggtccctta ttctctctc 180
 actttggctc catgccaacc gttgttgct ccacaccaga attgttcaag ctcttccttc 240
 aaacgcacga ggcaacttcc ttcaacacaa ggttccaaac ctcagccata agacgcctca 300
 cctatgatac ctcagtggtcc atggctccct tcggacctt ctggaaagttc gtgaggaagc 360
 tcatcatgaa cgacccctc aacgccacca ctgtaaacaa gttgaggcct ttgaggacc 420
 aacagatccg caagttcctt agggttatgg cccaaaggcgc agaggcacag aagcccttg 480
 acttgaccga ggagcttctg aaatggacca acagcaccac ctccatgatg atgctcgccg 540
 aggctgagga gatcagagac atcggcccgcg aggttcttaa gatctttggc gaatacagcc 600
 tcactgactt catccggcca ttgaagcatc tcaaggttgg aaagtatgag aagaggatcg 660
 acgacatctt gaacaagttc gaccctgtcg ttgaaagagt catcaagaag cggcgtgaga 720
 tcgtgaggag gagaagaagac ggagagggtt ttgagggtga ggtcagccgg gtttccctt 780
 acactttgc tgaattcgct gaggatgaga ccacggat caaaatcacc aaggaccaca 840
 tcaagggtct tgggtgcac ttttctcgg caggaacaga ctccacagcg gtggcaacag 900
 agtgggcattt ggcagaactc atcaacaatc ctaaggtttt ggaaaaggct cgtgaggagg 960
 ttcacagtgt tggggaaaag gacagactt gggacgaaatg tgacactcaa aacccctt 1020
 acatggagc aatcgtaag gagacattcc gcatgcaccc gccactccca gtggtaaaaa 1080
 gaaaatgcac agaagagtgt gagattaatg gatatgtat cccagaggga gcattgattc 1140
 tttcaatgt atggcaagta ggaagagact ccaaataactg ggacagacca tcggagttcc 1200
 gttctgagag gttcttagag acaggggctg aaggggaagc aaggccctt gatcttaggg 1260
 gacaacattt tcaacttctc ccatttgggt ctgggaggag aatgtccctt ggagtcaatc 1320
 tggctacttc gggaaatggca acacttctt catctttat tcagtgcctt gacttgcaag 1380
 tgctgggtcc acaaggacag atattgaagg gtggtgacgc caaagttagc atgaaagaga 1440
 gggccggcct cactgttcca agggcacata gtcttgcctg tggccactt gcaaggatcg 1500
 g

<210> 57

<211> 499

<212> PRT

<213> *Medicago sativa*

<400> 57

Phe Leu His Leu Arg Pro Thr Pro Thr Ala Lys Ser Lys Ala Leu Arg
 1 5 10 15

His Leu Pro Asn Pro Pro Ser Pro Lys Pro Arg Leu Pro Phe Ile Gly
 20 25 30

His Leu His Leu Leu Lys Asp Lys Leu Leu His Tyr Ala Leu Ile Asp
 35 40 45

Leu Ser Lys Lys His Gly Pro Leu Phe Ser Leu Tyr Phe Gly Ser Met
 50 55 60

Pro Thr Val Val Ala Ser Thr Pro Glu Leu Phe Lys Leu Phe Leu Gln
 65 70 75 80

Thr His Glu Ala Thr Ser Phe Asn Thr Arg Phe Gln Thr Ser Ala Ile
 85 90 95

Arg Arg Leu Thr Tyr Asp Ser Ser Val Ala Met Ala Pro Phe Gly Pro
 100 105 110

Tyr Trp Lys Phe Val Arg Lys Leu Ile Met Asn Asp Leu Leu Asn Ala
 115 120 125

Thr Thr Val Asn Lys Leu Arg Pro Leu Arg Thr Gln Gln Ile Arg Lys
 130 135 140

Phe Leu Arg Val Met Ala Gln Gly Ala Glu Ala Gln Lys Pro Leu Asp
 145 150 155 160

Leu Thr Glu Glu Leu Leu Lys Trp Thr Asn Ser Thr Thr Ser Met Met
 165 170 175

Met Leu Gly Glu Ala Glu Glu Ile Arg Asp Ile Ala Arg Glu Val Leu
 180 185 190

Lys Ile Phe Gly Glu Tyr Ser Leu Thr Asp Phe Ile Arg Pro Leu Lys
 195 200 205

His Leu Lys Val Gly Lys Tyr Glu Lys Arg Ile Asp Asp Ile Leu Asn
 210 215 220

Lys Phe Asp Pro Val Val Glu Arg Val Ile Lys Lys Arg Arg Glu Ile
 225 230 235 240

Val Arg Arg Arg Lys Asn Gly Glu Val Val Glu Gly Glu Val Ser Gly
 245 250 255

Val Phe Leu Asp Thr Leu Leu Glu Phe Ala Glu Asp Glu Thr Thr Glu
 260 265 270

Ile Lys Ile Thr Lys Asp His Ile Lys Gly Leu Val Val Asp Phe Phe
 275 280 285

Ser Ala Gly Thr Asp Ser Thr Ala Val Ala Thr Glu Trp Ala Leu Ala
 290 295 300

Glu Leu Ile Asn Asn Pro Lys Val Leu Glu Lys Ala Arg Glu Glu Val
 305 310 315 320

Tyr Ser Val Val Gly Lys Asp Arg Leu Val Asp Glu Val Asp Thr Gln
 325 330 335

Asn Leu Pro Tyr Ile Arg Ala Ile Val Lys Glu Thr Phe Arg Met His
 340 345 350

Pro Pro Leu Pro Val Val Lys Arg Lys Cys Thr Glu Glu Cys Glu Ile
 355 360 365

Asn Gly Tyr Val Ile Pro Glu Gly Ala Leu Ile Leu Phe Asn Val Trp
 370 375 380

Gln Val Gly Arg Asp Ser Lys Tyr Trp Asp Arg Pro Ser Glu Phe Arg
 385 390 395 400

Pro Glu Arg Phe Leu Glu Thr Gly Ala Glu Gly Glu Ala Arg Pro Leu
 405 410 415

Asp Leu Arg Gly Gln His Phe Gln Leu Leu Pro Phe Gly Ser Gly Arg
 420 425 430

Arg Met Cys Pro Gly Val Asn Leu Ala Thr Ser Gly Met Ala Thr Leu
 435 440 445

Leu Ala Ser Leu Ile Gln Cys Phe Asp Leu Gln Val Leu Gly Pro Gln
 450 455 460

Gly Gln Ile Leu Lys Gly Gly Asp Ala Lys Val Ser Met Glu Glu Arg
 465 470 475 480

Ala Gly Leu Thr Val Pro Arg Ala His Ser Leu Val Cys Val Pro Leu
 485 490 495

Ala Arg Ile

<210> 58

<211> 1501

<212> DNA

<213> *Medicago sativa*

<400> 58

tgtttctgca cttgcgtccc acacccactg caaaatcaaa agcacttcgc catctccaa 60
 acccacaag cccaaagcct cgtttccct tcataaggaca ctttcatctc taaaagaca 120
 aacttctcca ctacgcactc atcgacctct ccaaaaaaca tggccctta ttctctct 180
 actttggctc catgccaacc gtgttgcct ccacaccaga attgttcaag ctctccctcc 240
 aaacgcacga ggcaacttcc ttcaacacaa gttccaaac ctcagccata agacgcctca 300
 cctatgatag ctcaagtggcc atggcccttc tcggacctt ctggaaatgttgc 360
 tcatcatgaa cgaccttc aacgcccacca ctgtaaacaa gttgaggcct ttgaggaccc 420
 aacagatccg caagctccctt agggatatgg cccaaaggcgc agaggcacag aagcccttg 480
 acttgaccga ggacttctg aaatggacca acagcacat ctccatgtatg atgctcggcg 540
 aggctgagga gatcagagac atcgctcgat aggttcttaa gatctttggc gaatacagcc 600
 tcactgactt catctggcca ttgaagcata tcaagttgg aaagatgtatgg aagaggatcg 660
 acgacatctt gaacaagttc gaccctgtcg ttgaaagatgt catcaagaag cgcgtgaga 720
 tcgtgaggag gagaaagaac ggagaggatgtt ttgagggtga ggtcagcggg gtttcctt 780
 acactttgtc tgaattcgat gaggatgaga ccacggatg caaaatcacc aaggaccaca 840
 tcaagggtct ttgtgtcgac ttttctcgat caggaacaga ctccacagcg gtggcaacag 900
 agtgggcatt ggcagaactc atcaacaatc ctaaggatgtt ggagaaggct cgtgaggagg 960
 tctacagtgt tggggaaaag gacagacttg tggacaagt tgacactcaa aacccctt 1020
 acat tagagc aatcgtaag gagacattcc gcatgcaccc gccactccca gtggtaaaa 1080
 gaaagtgcac agaagatgtt gagattaatg gatatgtatg cccagaggaa gcattgattc 1140
 tcttcaatgt atggcaagta ggaagagacc ccaaatactg ggacagacca tcggagttcc 1200
 gtcctgagag gttccttagatg acaggggctg aagggaaagc aaggccctt gatcttaggg 1260
 gacaacattt tcaacttctc ccattttgggt ctgggaggag aatgtgcctt ggagtcaatc 1320
 tggctacttc gggaaatggca acacttcttgc catctttat tcaatgtgtt gacttgcac 1380
 tgctgggtcc acaaggacac atattgaagg gtgtgcacgc caaagttac atggaaagaga 1440
 gggccggcct cactgttcca agggcacata gtcttgcgt tggccactt gcaaggatcg 1500
 g

<210> 59

<211> 499

<212> PRT

<213> *Medicago sativa*

<400> 59
 Phe Leu His Leu Arg Pro Thr Pro Thr Ala Lys Ser Lys Ala Leu Arg
 1 5 10 15

His Leu Pro Asn Pro Pro Ser Pro Lys Pro Arg Leu Pro Phe Ile Gly
 20 25 30

His Leu His Leu Leu Lys Asp Lys Leu Leu His Tyr Ala Leu Ile Asp
 35 40 45

Leu Ser Lys Lys His Gly Pro Leu Phe Ser Leu Tyr Phe Gly Ser Met
 50 55 60

Pro Thr Val Val Ala Ser Thr Pro Glu Leu Phe Lys Leu Phe Leu Gln
 65 70 75 80

Thr His Glu Ala Thr Ser Phe Asn Thr Arg Phe Gln Thr Ser Ala Ile
 85 90 95

Arg Arg Leu Thr Tyr Asp Ser Ser Val Ala Met Val Pro Phe Gly Pro
 100 105 110

Tyr Trp Lys Phe Val Arg Lys Leu Ile Met Asn Asp Leu Leu Asn Ala
 115 120 125

Thr Thr Val Asn Lys Leu Arg Pro Leu Arg Thr Gln Gln Ile Arg Lys
 130 135 140

Leu Leu Arg Val Met Ala Gln Gly Ala Glu Ala Gln Lys Pro Leu Asp
 145 150 155 160

Leu Thr Glu Glu Leu Leu Lys Trp Thr Asn Ser Thr Ile Ser Met Met
 165 170 175

Met Leu Gly Glu Ala Glu Glu Ile Arg Asp Ile Ala Arg Glu Val Leu
 180 185 190

Lys Ile Phe Gly Glu Tyr Ser Leu Thr Asp Phe Ile Trp Pro Leu Lys
 195 200 205

His Leu Lys Val Gly Lys Tyr Glu Lys Arg Ile Asp Asp Ile Leu Asn
 210 215 220

Lys Phe Asp Pro Val Val Glu Arg Val Ile Lys Lys Arg Arg Glu Ile
 225 230 235 240

Val Arg Arg Arg Lys Asn Gly Glu Val Ile Glu Gly Glu Val Ser Gly
 245 250 255

Val Phe Leu Asp Thr Leu Leu Glu Phe Ala Glu Asp Glu Thr Thr Glu
 260 265 270

Ile Lys Ile Thr Lys Asp His Ile Lys Gly Leu Val Val Asp Phe Phe
 275 280 285

Ser Ala Gly Thr Asp Ser Thr Ala Val Ala Thr Glu Trp Ala Leu Ala
 290 295 300

Glu Leu Ile Asn Asn Pro Lys Val Leu Glu Lys Ala Arg Glu Glu Val
 305 310 315 320

Tyr Ser Val Val Gly Lys Asp Arg Leu Val Asp Glu Val Asp Thr Gln
 325 330 335

Asn Leu Pro Tyr Ile Arg Ala Ile Val Lys Glu Thr Phe Arg Met His
 340 345 350

Pro Pro Leu Pro Val Val Lys Arg Lys Cys Thr Glu Glu Cys Glu Ile
 355 360 365

Asn Gly Tyr Val Ile Pro Glu Gly Ala Leu Ile Leu Phe Asn Val Trp
 370 375 380

Gln Val Gly Arg Asp Pro Lys Tyr Trp Asp Arg Pro Ser Glu Phe Arg
 385 390 395 400

Pro Glu Arg Phe Leu Glu Thr Gly Ala Glu Gly Glu Ala Arg Pro Leu
 405 410 415

Asp Leu Arg Gly Gln His Phe Gln Leu Leu Pro Phe Gly Ser Gly Arg
 420 425 430

Arg Met Cys Pro Gly Val Asn Leu Ala Thr Ser Gly Met Ala Thr Leu
 435 440 445

Leu Ala Ser Leu Ile Gln Cys Phe Asp Leu Gln Val Leu Gly Pro Gln
 450 455 460

Gly Gln Ile Leu Lys Gly Gly Asp Ala Lys Val Ser Met Glu Glu Arg
 465 470 475 480

Ala Gly Leu Thr Val Pro Arg Ala His Ser Leu Val Cys Val Pro Leu
 485 490 495

Ala Arg Ile

<210> 60

<211> 1497

<212> DNA

<213> Beta vulgaris

<400> 60

tctgcacttg	cgccccacac	ccactgcaaa	atcaaaagca	cttcgcccac	tcccaaacc	60
accaagccca	aaggctcg	ttcccttc	catgcac	tttttttttt	aaaaacatgg	120
tctccactac	gcactcatcg	acccatccaa	aaaacatgg	cccttattct	ctcactactt	180
tggctccatg	ccaaaccgtt	ttgcctccac	accagaattt	tcaagctct	tcctccaaac	240
gaacgaggca	acttccttca	acacaagg	ccaaacctca	gccataagac	gcctcaccta	300
tgatagctca	gtggccatgg	ttcccttcgg	accttaactgg	aagttcg	ggaagctcat	360
catgaacgc	tttctcaac	ccaccactgt	aaacaagg	tttttttttt	ggacccaaca	420
gatccgc	ttcccttaggg	ctatggccca	aggcgcagag	gcacggaa	cccttgactt	480
gaccgaggag	tttctgaaat	gggccaac	caccatctcc	atgtatgtgc	tcggcgaggc	540
tgaggagatc	agagacatcg	ctcgcgagg	tcttaagatc	tttggcgaat	acagcctcac	600
tgacttcatc	tggccattga	agcatctca	ggttgaaag	tatgagaaga	ggatcgacga	660
catcttgaac	aagttcgacc	ctgtcggt	aagagtcatc	aagaagc	gtgagatcgt	720
gaggaggaga	aagaacggag	agttgtt	gggtgagg	tcgggggtt	tccttgacac	780
tttgcttga	ttcgctgagg	atgagaccat	ggagatca	atcacca	accacacca	840
gggtcttgtt	gtcgacttct	tctcgccagg	aacagactcc	acagcggtt	caacagagt	900
ggcattggca	gaactcatca	acaatcctaa	ggtgtggaa	aaaggctcg	aggaggctt	960
cagtgttgt	ggaaaggaca	gacttgtt	cgaagg	actcaaaacc	ttccttacat	1020
tagcaatc	gtgaaggaga	cattccgc	gcacccg	ttccctt	ttccctt	1080
gtgcac	gagtgtgaga	ttaatggata	tgtgtccca	gagg	tttttttt	1140
caatgtatgg	caatgtatgg	gagccccaa	atactgg	tttttttt	tttttttt	1200
tgagagg	ctagagac	gggctgaagg	ggaagg	tttttttt	tttttttt	1260
acat	tttccat	ttgggtctt	tttttttt	tttttttt	tttttttt	1320
tacttcgg	acggcaacac	ttcttgc	tttttttt	tttttttt	tttttttt	1380
gggtcc	ggacagat	tgaagggtt	tgacgg	tttttttt	tttttttt	1440
cggcct	cacatgtct	tgtctgtt	ccacttg	tttttttt	tttttttt	1497

<210> 61

<211> 498

<212> PRT
 <213> Beta vulgaris

<400> 61
 Leu His Leu Arg Pro Thr Pro Thr Ala Lys Ser Lys Ala Leu Arg His
 1 5 10 15
 Leu Pro Asn Pro Pro Ser Pro Lys Pro Arg Leu Pro Phe Ile Gly His
 20 25 30
 Leu His Leu Leu Lys Asp Lys Leu Leu His Tyr Ala Leu Ile Asp Leu
 35 40 45
 Ser Lys Lys His Gly Pro Leu Phe Ser His Tyr Phe Gly Ser Met Pro
 50 55 60
 Thr Val Val Ala Ser Thr Pro Glu Leu Phe Lys Leu Phe Leu Gln Thr
 65 70 75 80
 Asn Glu Ala Thr Ser Phe Asn Thr Arg Phe Gln Thr Ser Ala Ile Arg
 85 90 95
 Arg Leu Thr Tyr Asp Ser Ser Val Ala Met Val Pro Phe Gly Pro Tyr
 100 105 110
 Trp Lys Phe Val Arg Lys Leu Ile Met Asn Asp Leu Leu Asn Ala Thr
 115 120 125
 Thr Val Asn Lys Leu Arg Pro Leu Arg Thr Gln Gln Ile Arg Lys Phe
 130 135 140
 Leu Arg Ala Met Ala Gln Gly Ala Glu Ala Arg Lys Pro Leu Asp Leu
 145 150 155 160
 Thr Glu Glu Leu Leu Lys Trp Ala Asn Ser Thr Ile Ser Met Met Met
 165 170 175
 Leu Gly Glu Ala Glu Glu Ile Arg Asp Ile Ala Arg Glu Val Leu Lys
 180 185 190
 Ile Phe Gly Glu Tyr Ser Leu Thr Asp Phe Ile Trp Pro Leu Lys His
 195 200 205
 Leu Lys Val Gly Lys Tyr Glu Lys Arg Ile Asp Asp Ile Leu Asn Lys
 210 215 220
 Phe Asp Pro Val Val Glu Arg Val Ile Lys Lys Arg Arg Glu Ile Val
 225 230 235 240
 Arg Arg Arg Lys Asn Gly Glu Val Val Glu Gly Glu Val Ser Gly Val
 245 250 255
 Phe Leu Asp Thr Leu Leu Glu Phe Ala Glu Asp Glu Thr Met Glu Ile
 260 265 270
 Lys Ile Thr Lys Asp His Thr Lys Gly Leu Val Val Asp Phe Phe Ser
 275 280 285
 Ala Gly Thr Asp Ser Thr Ala Val Ala Thr Glu Trp Ala Leu Ala Glu
 290 295 300
 Leu Ile Asn Asn Pro Lys Val Leu Glu Lys Ala Arg Glu Glu Val Tyr
 305 310 315 320
 Ser Val Val Gly Lys Asp Arg Leu Val Asp Glu Val Asp Thr Gln Asn
 325 330 335

Leu Pro Tyr Ile Arg Ala Ile Val Lys Glu Thr Phe Arg Met His Pro
 340 345 350
 Pro Leu Pro Val Val Lys Arg Lys Cys Thr Glu Glu Cys Glu Ile Asn
 355 360 365
 Gly Tyr Val Ile Pro Glu Gly Ala Leu Ile Pro Phe Asn Val Trp Gln
 370 375 380
 Val Gly Arg Asp Pro Lys Tyr Trp Asp Arg Pro Ser Glu Phe Arg Pro
 385 390 395 400
 Glu Arg Phe Leu Glu Thr Gly Ala Glu Gly Glu Ala Arg Pro Leu Asp
 405 410 415
 Leu Arg Gly Gln His Phe Gln Leu Leu Pro Phe Gly Ser Gly Arg Arg
 420 425 430
 Met Cys Pro Gly Val Asn Leu Ala Thr Ser Gly Thr Ala Thr Leu Leu
 435 440 445
 Ala Ser Leu Ile Gln Cys Phe Asp Leu Gln Val Leu Gly Pro Gln Gly
 450 455 460
 Gln Ile Leu Lys Gly Gly Asp Ala Lys Val Ser Met Glu Glu Arg Ala
 465 470 475 480
 Gly Leu Thr Val Pro Arg Ala His Ser Leu Val Cys Val Pro Leu Ala
 485 490 495
 Arg Ile

<210> 62
 <211> 22
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:PCR PRIMER

<400> 62
 gttaccatgg ctgctgctat tg

22

<210> 63
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:PCR PRIMER

<400> 63
 ttaaacgtaa aatgaaacaa gagg

24

<210> 64
 <211> 26
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:PCR PRIMER

<400> 64
 gacacttcga cactgctgct gcttat

26

<210> 65
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:PCR PRIMER

<400> 65
tctcaaactc acctgggcta tggat 25

<210> 66
<211> 521
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Consensus

<220>
<221> UNSURE
<222> (10)

<220>
<221> UNSURE
<222> (16)

<220>
<221> UNSURE
<222> (23)

<220>
<221> UNSURE
<222> (25)

<220>
<221> UNSURE
<222> (39)

<220>
<221> UNSURE
<222> (48)

<220>
<221> UNSURE
<222> (60)

<220>
<221> UNSURE
<222> (73)

<220>
<221> UNSURE
<222> (74)

<220>
<221> UNSURE
<222> (95)

<220>
<221> UNSURE
<222> (102)

DRAFT - DO NOT CITE

<220>
<221> UNSURE
<222> (110)

<220>
<221> UNSURE
<222> (112)

<220>
<221> UNSURE
<222> (117)

<220>
<221> UNSURE
<222> (118)

<220>
<221> UNSURE
<222> (121)

<220>
<221> UNSURE
<222> (122)

<220>
<221> UNSURE
<222> (124)

<220>
<221> UNSURE
<222> (129)

<220>
<221> UNSURE
<222> (147)

<220>
<221> UNSURE
<222> (159)

<220>
<221> UNSURE
<222> (162)

<220>
<221> UNSURE
<222> (166)

<220>
<221> UNSURE
<222> (170)

<220>
<221> UNSURE
<222> (175)

<220>
<221> UNSURE
<222> (183)

<220>
<221> UNSURE
<222> (187)

<220>
<221> UNSURE
<222> (191)

<220>
<221> UNSURE
<222> (209)

<220>
<221> UNSURE
<222> (219)

<220>
<221> UNSURE
<222> (223)

<220>
<221> UNSURE
<222> (253)

<220>
<221> UNSURE
<222> (259)

<220>
<221> UNSURE
<222> (263)

<220>
<221> UNSURE
<222> (264)

<220>
<221> UNSURE
<222> (268)

<220>
<221> UNSURE
<222> (272)

<220>
<221> UNSURE
<222> (285)

<220>
<221> UNSURE
<222> (293)

<220>
<221> UNSURE
<222> (294)

<220>
<221> UNSURE
<222> (301)

<220>
<221> UNSURE
<222> (306)

<220>
<221> UNSURE
<222> (311)

<220>
<221> UNSURE
<222> (312)

<220>
<221> UNSURE
<222> (325)

<220>
<221> UNSURE
<222> (328)

<220>
<221> UNSURE
<222> (334)

<220>
<221> UNSURE
<222> (342)

<220>
<221> UNSURE
<222> (377)

<220>
<221> UNSURE
<222> (381)

<220>
<221> UNSURE
<222> (385)

<220>
<221> UNSURE
<222> (387)

<220>
<221> UNSURE
<222> (393)

<220>
<221> UNSURE
<222> (394)

<220>
<221> UNSURE
<222> (402)

<220>
<221> UNSURE
<222> (404)

<220>
<221> UNSURE
<222> (413)

<220>
<221> UNSURE
<222> (422)

<220>
<221> UNSURE
<222> (428)

<220>
<221> UNSURE
<222> (429)

<220>
<221> UNSURE
<222> (435)

<220>
<221> UNSURE
<222> (447)

<220>
<221> UNSURE
<222> (453)

<220>
<221> UNSURE
<222> (459)

<220>
<221> UNSURE
<222> (485)

<400> 66

Met Leu Leu Glu Leu Ala Leu Gly Leu Xaa Val Leu Ala Leu Phe Xaa
1 5 10 15

His Leu Arg Pro Thr Pro Xaa Ala Xaa Ser Lys Ala Leu Arg His Leu
20 25 30

Pro Asn Pro Pro Ser Pro Xaa Pro Arg Leu Pro Phe Ile Gly His Xaa
35 40 45

His Leu Leu Lys Asp Lys Leu Leu His Tyr Ala Xaa Ile Asp Leu Ser
50 55 60

Lys Lys His Gly Pro Leu Phe Ser Xaa Xaa Phe Gly Ser Met Pro Thr
65 70 75 80

Val Val Ala Ser Thr Pro Glu Leu Phe Lys Leu Phe Leu Gln Xaa Xaa
85 90 95

Glu Ala Thr Ser Phe Xaa Thr Arg Phe Gln Thr Ser Ala Xaa Arg Xaa
100 105 110

Leu Thr Tyr Asp Xaa Xaa Val Ala Xaa Xaa Pro Xaa Gly Pro Tyr Trp
115 120 125

Xaa Phe Val Arg Lys Leu Ile Met Asn Asp Leu Leu Asn Ala Thr Thr
130 135 140

Val Asn Xaa Leu Arg Pro Leu Arg Thr Gln Gln Ile Arg Lys Xaa Leu
145 150 155 160

Arg Xaa Met Ala Gln Xaa Ala Glu Ala Xaa Lys Pro Leu Asp Xaa Thr
165 170 175

Glu Glu Leu Leu Lys Trp Xaa Asn Ser Thr Xaa Ser Met Met Xaa Leu
180 185 190

Gly Glu Ala Glu Glu Ile Arg Asp Ile Ala Arg Glu Val Leu Lys Ile
195 200 205

Xaa Gly Glu Tyr Ser Leu Thr Asp Phe Ile Xaa Pro Leu Lys Xaa Leu
210 215 220

Lys Val Gly Lys Tyr Glu Lys Arg Ile Asp Asp Ile Leu Asn Lys Phe
225 230 235 240

Asp Pro Val Val Glu Arg Val Ile Lys Lys Arg Arg Xaa Ile Val Arg
245 250 255

Arg Arg Xaa Asn Gly Glu Xaa Xaa Glu Gly Glu Xaa Ser Gly Val Xaa
260 265 270

Leu Asp Thr Leu Leu Glu Phe Ala Glu Asp Glu Thr Xaa Glu Ile Lys
275 280 285

Ile Thr Lys Xaa Xaa Ile Lys Gly Leu Val Val Asp Xaa Phe Ser Ala
290 295 300

Gly Xaa Asp Ser Thr Ala Xaa Xaa Thr Glu Trp Ala Leu Ala Glu Leu
305 310 315 320

Ile Asn Asn Pro Xaa Val Leu Xaa Xaa Ala Arg Glu Glu Xaa Tyr Ser
325 330 335

Val Val Gly Lys Asp Xaa Leu Val Asp Glu Val Asp Thr Gln Asn Leu
340 345 350

Pro Tyr Ile Arg Ala Ile Val Lys Glu Thr Phe Arg Met His Pro Pro
355 360 365

Leu Pro Val Val Lys Arg Lys Cys Xaa Glu Glu Cys Xaa Ile Asn Gly
370 375 380

Xaa Val Xaa Pro Glu Gly Ala Leu Xaa Xaa Phe Asn Val Trp Gln Val
385 390 395 400

Gly Xaa Asp Xaa Lys Tyr Trp Asp Arg Pro Ser Glu Xaa Arg Pro Glu
405 410 415

Arg Phe Leu Glu Thr Xaa Ala Glu Gly Glu Ala Xaa Xaa Leu Asp Leu
420 425 430

Arg Gly Xaa His Phe Gln Leu Leu Pro Phe Gly Ser Gly Arg Xaa Met
435 440 445

Cys Pro Gly Val Xaa Leu Ala Thr Ser Gly Xaa Ala Thr Leu Leu Ala
450 455 460

Ser Leu Ile Gln Cys Phe Asp Leu Gln Val Leu Gly Pro Gln Gly Gln
465 470 475 480

Ile Leu Lys Gly Xaa Asp Ala Lys Val Ser Met Glu Glu Arg Ala Gly
485 490 495

Leu Thr Val Pro Arg Ala His Ser Leu Val Cys Val Pro Leu Ala Arg
500 505 510

Ile Gly Val Ala Ser Lys Leu Leu Ser
515 520